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THE CONSTRUCTION AND MANAGEMENT OF SMALL COTTAGE SANATORIA FOR CONSUMPTIVES.¹

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It is not the purpose of this paper to discuss the value of sanatorium treatment for consumptives. The members of this Association are thoroughly familiar with the subject, and although there might be still a difference of opinion as to the extent of success which can be attained in different cases, no one familiar with the subject doubts the importance of the movement in this direction. Experience certainly has demonstrated the advantage of the systematic sanatorium treatment over the "open treatment" at home or in health resorts. It has further shown to a very great extent that equally good and even better results can be obtained at home in sanatoria than in far-away regions with more desirable climatic conditions, and it seems that the good results obtained in home climates outrange in duration those of foreign regions.

It will never be possible to accommodate all consumptives in hospitals or sanatoria, nor even an adequate number of those recognized as such by medical men. Therefore, it will be one of the chief purposes of sanatorium treatment, not only to attract numerous patients under one roof, but also, and still more, to scatter institutions in the greatest possible number all over the country. Every one agrees on the great educational influence which the sanatorium régime has on the individual, who later becomes a missionary in the cause of hygiene, by example and by teaching, spreading broadcast the principles to which he owes his recovery or at least decided improvement. There certainly is no better and more impressive teacher than experience.

The fight against this disease, which is of such distinct danger to the economy of the State, is now carried on in different communities of this country; but there is need, it seems to me, of more concerted action of a National character, and with an underlying, carefully studied plan, which would bring about more lasting results. A small country, like Norway, has been able by such a plan to keep in check leprosy, which in many respects resembles tuberculosis. The public but little understands the extent of this danger; a great deal is done now to educate public opinion on this point, and it is to be expected that more progress in this direction will be made when professional men in general take the leader-

ship and desert their somewhat apathetic and indifferent position. In recent years societies have been formed for the prevention of tuberculosis, the Pennsylvania Society in the lead. Splendid work has been done to educate public opinion and to influence legislatures. To their work it is largely due that the construction of State sanatoria for the poor has been brought into consideration. But their influence is more or less a local one, although the example once set stimulates imitation to a great degree. The chief aim of these local bodies is officially to spread correct information on the prevention of the disease, by distributing pamphlets and directions to the public, by organizing public lectures, etc.; but unless their endeavor is backed by a strong, influential and central organization, they can do comparatively little. So, for instance, a "Society for the Prevention of Tuberculosis" was founded in Chicago, and soon after its organization and over its head a "Citizens' Committee" was formed, which collected money for a consumptives' hospital and, if I am well informed, with good success. Probably much money will be spent for this hospital, but I believe that the plan to build it arises more from the desire to hospitalize consumptives, who are not accepted in other hospitals, than to go a step forward and carry on a systematic plan for treatment. We have another hospital for consumptives near Chicago in Dunning, built by Cook County two years ago and managed together with the insane asylum. This institution, for some reason or other, is dreaded by every one who expects to be sent there. It is considered worse than an insane asylum or any other general hospital, and any one sent there gives up hope of ever returning. Such institutions tend very much to discredit the efforts of the sanatorium movement, and although it is certain that their erection was undertaken with the highest motives, their value could have been considerably enhanced if in their construction a distinct plan, approved by an influential National body, could have been followed.

I am well aware that in the construction and management of such hospitals or sanatoria, local conditions must be taken into account, but the experience of past years in this direction has established general principles, which, with slight modifications, can be carried out anywhere.

Since Brehmer in 1854 started his sanatorium in Gerbersdorf, numerous institutions on a similar plan have been constructed everywhere, but chiefly in Germany. In England hospitalization of consumptives dates even further back, but only recently have institutions been built there with a plan different from general hospitals and paying

¹ Read before the American Climatological Association, Washington, May 1-3, 1900.

special attention to those features which materially increase their value. In this country, although we possess a few model institutions, the Adirondacks Cottage Sanatorium, under Dr. Trudeau's supervision, Dr. Bowditch's Sharon Sanatorium, the Loomis Sanatorium in New York State and another one in Aiken, S. C., these constitute about the only institutions where a distinct plan is followed both in construction and management. A new era has opened in this country with the building of the Massachusetts State Hospital for Consumptives in Rutland in October, 1898; and the first annual report by Dr. Bowditch demonstrates the beginning as a most successful and promising one. Other States are planning similar institutions and it is to be hoped that the experience so far gained will be most effectively utilized in the future.

The chief advantages which a hospital or sanatorium have to offer to a tuberculous patient are: *The greatest possible amount of fresh, pure and mostly open air; wholesome and abundant alimentation; protection from reinfection; cheerful surroundings and energetic guidance in regard to the daily régime, adapted to the individual case.* With intention I omit the carrying out of other therapeutic methods or medicinal treatment, because, although they may form the basis of important results and therefore should be further investigated, they must take a secondary position in the treatment of pulmonary tuberculosis. These advantages are to be found in those model institutions in this country, of which I spoke before, and I desire to add one point which I believe has not received much attention and still is of some importance. Sanatorium life, which under any circumstances has to be a prolonged one, becomes more or less monotonous to the patient, according to his or her individual disposition. We frequently see that this has a distinct bearing on the progress of some cases, and it seems of great importance to provide an adequate occupation which will not be harmful in a given case. Games of various sort, entertainments, lectures and so on, have for this reason been introduced into the sanatorium plan and most assuredly this always should be done; but I do not see why other occupations, useful to the patient after his discharge, should not be introduced as a prominent feature in the plan. Gardening, carpentering and other occupations of a similar nature, a regular manual training-school, could easily be introduced and should receive attention in the planning of a sanatorium. In those institutions whose purpose it is to receive the more advanced cases, and for which the name of "hospital" seems more adequate, in distinction from "sanatorium" for those in earlier stages or with greater chances of improvement, such provisions are necessarily impossible.

Of all the few points which I mentioned as essential desiderata for the sanatorium plan, not one has an absolute preponderance over the other. We have to find them united in order to succeed. But the one point which in the con-

structive plan of the sanatorium, as well as in the régime of the patients, should receive the most careful consideration is the necessity of an *abundant pure-air supply*. In every good hospital as well as in dwelling-houses this point receives attention, but in planning a sanatorium it must be given the benefit of the most painstaking study and carefully weighed experience. The geographical location will have to be considered, and here we encounter again the discussion on the merits of home climates as compared to foreign ones. The sending away of consumptive patients to more or less remote districts would be of small value to the community. It would not be practicable to so transport but a very insignificant fraction of them. The distinct advantage of certain climates, especially those of high altitudes and southern latitudes, over others nearer to the chief centers of population has often been claimed but never been demonstrated conclusively. Fortunately experience in sanatoria in districts less favored by climate and even with distinct disadvantages has proven the fallacy of the dogma that: "Only in the removal to certain climates the consumptive may find his salvation." Nobody even now doubts the great advantages of a life in certain regions. The dryness, and especially the purity of the atmosphere, the absence of certain temperature changes, the advantages of surroundings which naturally lead to an out-door life, and many other points, speak for it. The chief disadvantage lies in the remoteness of such districts, inadequate accommodations, lack of supervision and usual absence of preventative precautions in lodging-houses, together with a crowding together of pulmonary invalids. The demonstration that equally or nearly as good results are possible from treatment near home must therefore be received as a great blessing. The contamination of the air in cities has hardly any influence on the districts thirty to forty miles distant. Provided the soil is well drained, there is an abundance of fresh, pure water, some hills or a forest to offer shelter against the northerly or easterly winds, and an absence of unhygienic and irreparable features, we can find a site for a sanatorium which would have all the advantages of easy access. Some locations near cities will offer still greater natural advantages. These are only the ones of greatest importance, and in the selection of a site one would naturally choose the situation which unites in itself the greatest number of natural advantages. The great natural purifiers of the atmosphere are sunshine, rain and wind. The last two we find in abundance in our more populous districts; the former, which has the most distinct influence on the healthfulness of a region (Ruhemann), is not so abundant, especially in winter. Some of the high altitude resorts have three or four times more sunny hours per day than do those of low altitude, but it would be incorrect to attribute to them for this reason alone an equally higher salubrity. The difference is certainly less, especially when by building our sanatorium on low lands, by well-

FIG. 1.

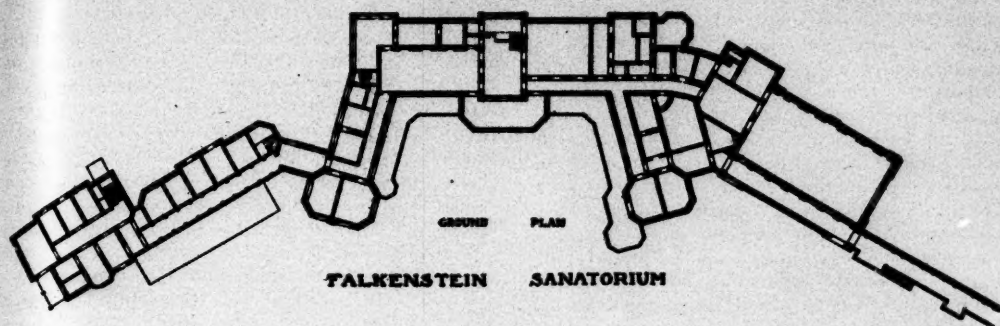


FIG. 2.

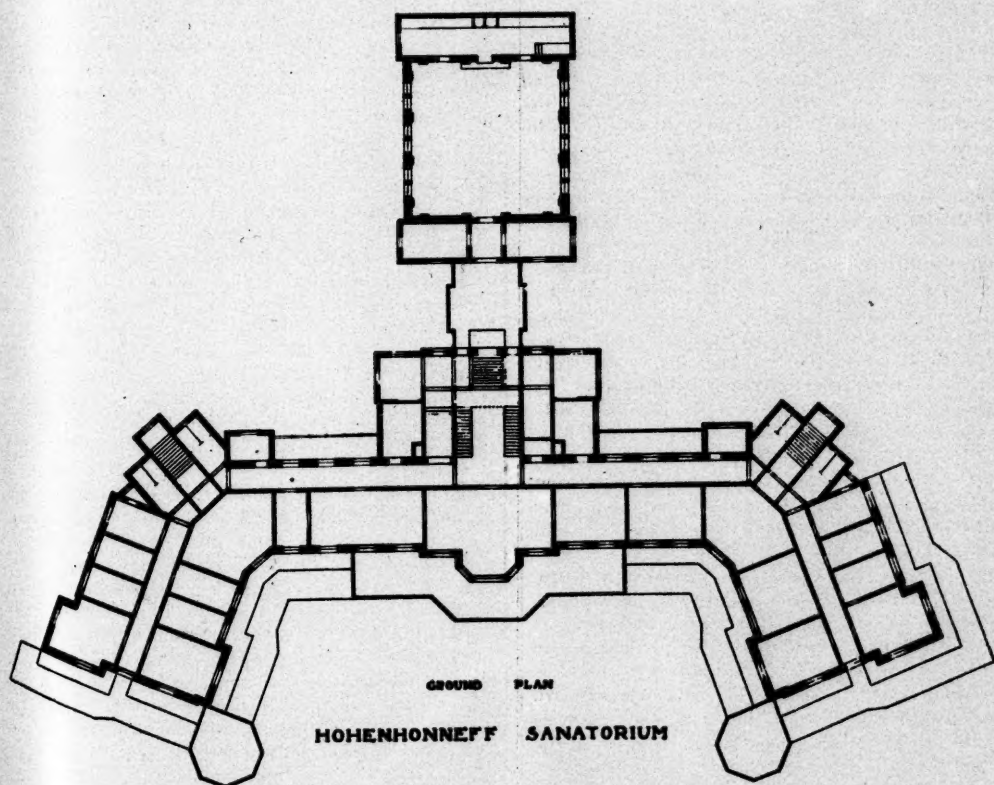
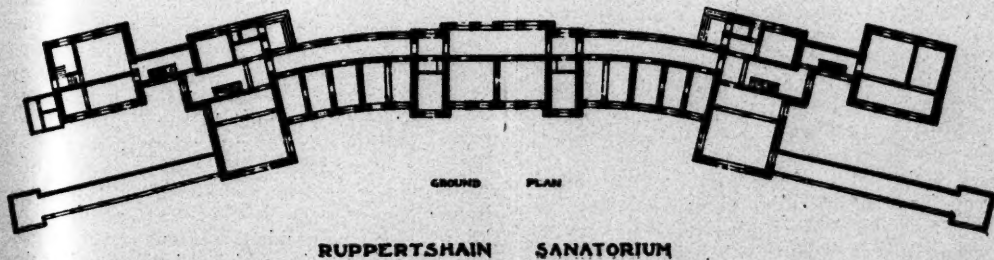


FIG. 3



arranged shelters and sun-galleries, we succeed in getting the utmost good out of local meteorological conditions. The *supply of good, wholesome food* which, together with open air, forms an essential of the sanatorium treatment, can be had much easier, better and cheaper near populated districts than in distant regions. It is a frequent occurrence that patients sent to Colorado, Arizona, California, etc., find in addition to very poor accommodations, food thoroughly unfit for the sick and often inadequate for the well. This is a serious drawback to such places, as a combination of favorable circumstances in the selection of a resort for consumptives is most necessary. The excellent markets which our cities offer are open to such sanatoria in their neighborhood, and allow not only a selection of the best quality, but also a variety of diet, most desirable and important.

The method by which in the construction of modern sanatoria the unfavorable influence of local changes in weather on the patients can be successfully avoided has received attention only comparatively recently. Falkenstein in the Taunus, built in 1876, is the first institution which was constructed on a plan, hence adopted by other sanatoria with more or less important modifications. Dettweiler, the originator of the "Liegekur" in the open air, was responsible for this first attempt, which since has proved so eminently successful. Falkenstein is the type for one of the two extreme groups in sanatorium construction, the single-building plan, the other being the cottage plan.

Here we find a large building accommodating 200 patients, with a southeastern frontage, protected toward the north and west by hills and forests. From the central part of the building two wings issue at obtuse angles, forming in this way a large space well protected from northerly winds. Here we find the porches and verandas for the rest treatment which is carried out in the open both in winter and summer. In later years, to increase the size of the institution, two cottages were built and joined with the main building by covered corridors. The same plan in general we find adopted at the Hohenhonneff Sanatorium, except for the absence of the cottages connected with the main building and the more open angle at which the wings diverge from the central part. In the Ruppertsheim Sanatorium, which is situated near Falkenstein and under the same management, we find a somewhat different plan, different chiefly in the distribution of the verandas, and, as I believe, creating an improvement over the other plan. The whole building is slightly curved, with its concavity facing south. All the rooms and wards are on this side, and the fresh-air galleries are not enclosed by the main building, but extend east and west, following the direction of the curve of the building. A similar building plan has recently been adopted by the Sanatorium Freidrichsheim in Marzell (Kanderthal, Württemberg), near Badenweiler.

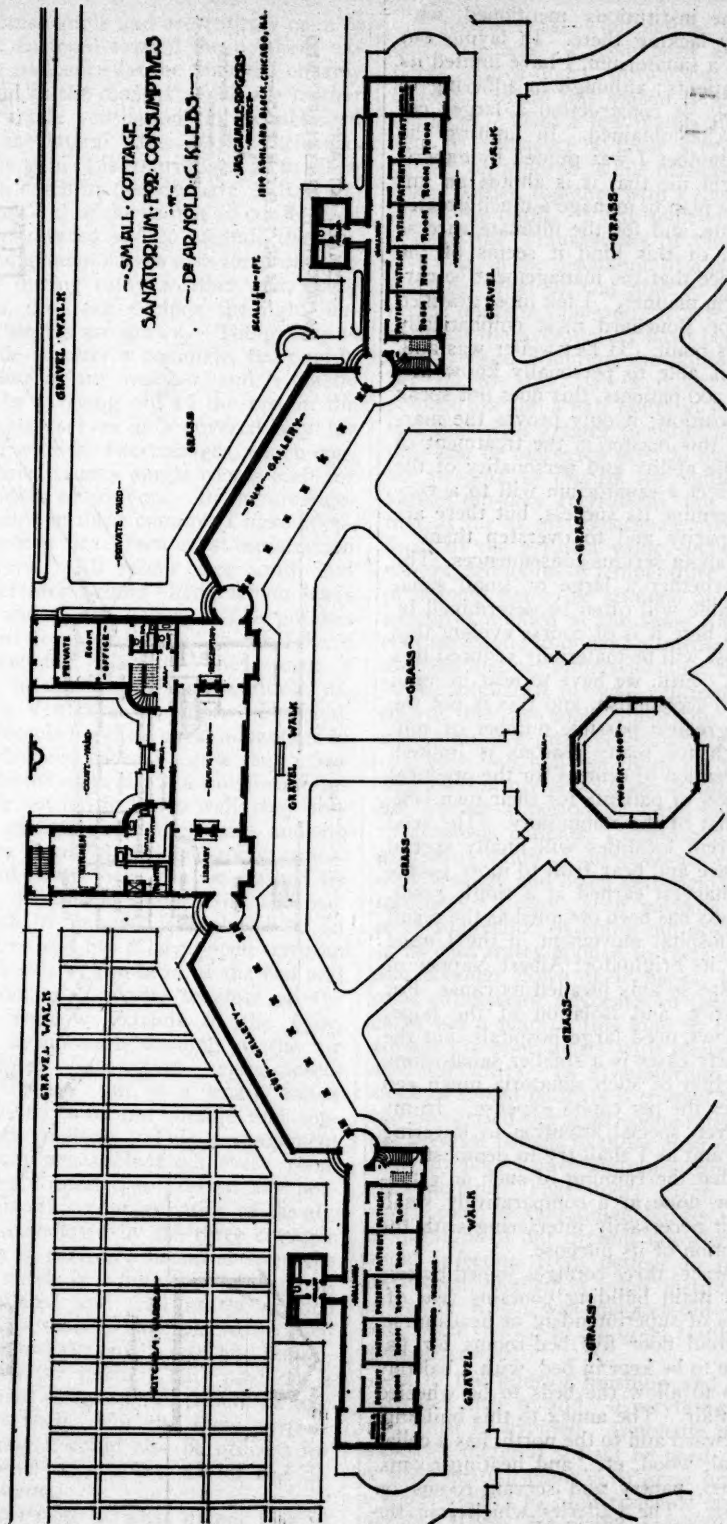
In the cottage plan, the porches of the single cottages constitute the fresh-air galleries, the common rooms, such as the dining-hall and administration rooms, being in a separate building. The little village is usually built so as to be protected from winds by a hill or by woods. The air space of the cottage rooms is increased by large transoms opening into a central sitting-room. This building type is so well represented in this country, especially by the Adirondack Cottage Sanitarium, that I need not go into further details in describing it.

A compromise between these two constructive types was attempted in the Massachusetts State Hospital for Consumptives in Rutland. The trustees, with the purpose in mind to furnish the wards with an abundance of light and the possibility of natural ventilation, and in order to avoid the ventilation from one story into the next one, common in high buildings, adopted a one-story plan of nine separate pavilions, joined on their northern end by short, covered corridors. The pavilions are not arranged parallel to each other, but are radiating in different directions from southeast to southwest. There are no covered porches, except at the southern end of the pavilions, where solaria, partly open, partly enclosed by glass, are joined directly to the wards.

Shelter, together with abundant ventilation, both in the rooms and outside, is the guiding feature in all these building plans, although the purpose is achieved in different ways. All have one point in common, they can accommodate a large number of patients, from 100 to 200 and more. The single-building plan allows the accommodation of a greater number of patients on a relatively small ground space and simplifies the supervision of the patients, as well as the administration. In the cottage plan a strict supervision cannot be carried out and a larger area is required for the building ground.

As rest in the open air so largely enters the régime of almost every patient for at least part of the day, the question of providing sufficiently sheltered places needs the greatest attention, and furthermore, such shelters, especially in our climate of two distinct seasons, have to be adjustable to the weather during winter as well as summer. In visiting the different sanatoria I was struck by the fact that but little attention was paid to this point. The fresh-air galleries, although in winter fully meriting this term, become hot-beds in summer, no refreshing breeze being apt to reach them. Of course in most of these sanatoria other, more open galleries are built in different locations on the grounds for use in summer; but where economy of space is essential, as in institutions for the poor, adequate arrangements should be included in the building plan. While superintending a sanatorium, I have often studied over the problem as to how to meet this important requirement, and owing to the able assistance of J. Garble Rogers, Esq., architect, of Chicago, have been able to present you the plans for such an institution which, I believe, unites the

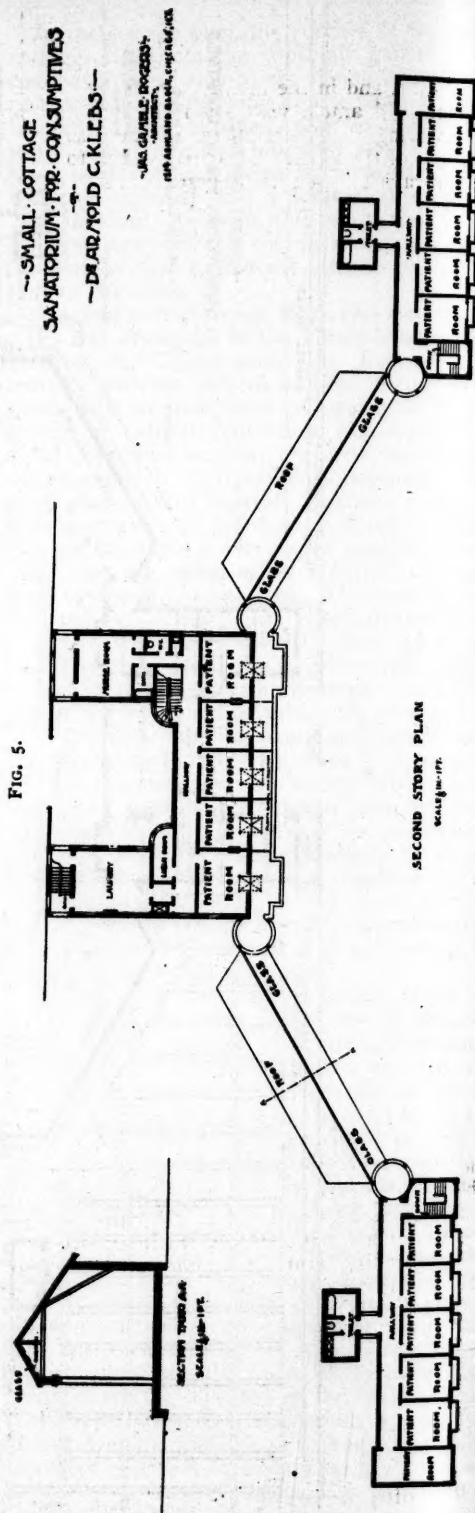
FIG. 4.



The Ground Plan.

advantages of the institutions mentioned with others apparently lacking there. In laying out the plan for such a sanatorium, I have limited its capacity to 25 patients; although in adhering to the same principle of construction a larger capacity can easily be obtained. In limiting the capacity to this number I was guided by experience, which taught me that it is almost an impossibility for *one* man to manage a much greater number of patients, and for the ultimate success of an institution of this kind it seems of the greatest importance that the management be carried out in uniform manner. I felt most gratified to hear Professor Bouchard most emphatically sustain me in this point. If Dettweiler was and, as I hope, still is able to personally know and supervise nearly 200 patients, this does not speak against my proposition; it only proves the marvelous ability of this master in the treatment of tuberculosis. The ability and personality of the man called to direct a sanatorium will to a very great extent determine its success, but there are limits to his capacity and to overstep them usually to bring about serious consequences. The question as to whether a large or small sanatorium is preferable will often be determined by the expense, and here it is of course evident that the per capita cost will be materially reduced in a large institution. Still, we have to bear in mind what we want to accomplish, and this is not the housing of the greatest possible number of consumptives, which for many reasons is limited, but rather the creation of centers for the practical hygienic education of patients for their own benefit as well as that of the community. The seed planted in different localities will finally spread over a wider space and bear fruit to more people than the large harvest earned at a single point. Wonderful success has been obtained as the result of the cottage-hospital movement in the United Kingdom, since its originator, Albert Napper of Cranleigh, in 1859 so ably pleaded its cause. For the accommodation and isolation of the hopelessly advanced we need large hospitals, but the ideal for the early cases is a smaller sanatorium. In the construction of such sanatoria much can be done to lower the per capita expense. In my plan I have given special attention to lowering the initial cost, and as I shall try to demonstrate, I also believe that the running of such an establishment can be done at a comparatively small expense without necessarily interfering with the thorough execution of its purpose.

My plan embraces three cottages joined by two galleries. The main building contains two offices, bed-rooms of superintendent or head-nurse, and in the second floor five bed-rooms for patients who have to be kept in bed, with a balcony so arranged as to allow the beds to be wheeled out in the open air. The annex to this building, extending backward and to the north, has a cellar for storing coal, wood, etc., and heating-rooms, laundry, kitchen, pantry and servant-rooms on the second floor. The galleries which join the cottages to the central building diverge from the



latter at an obtuse angle and are entirely open to the south, but enclosed toward the northern exposure. This enclosure can be removed entirely in summer, and in the months which are neither hot nor cold ample ventilation can be obtained by removing the lateral parts of the enclosure. The roof of the gallery is so arranged as to allow the sun-rays to reach its deepest part; still, if too hot, the extreme end of the roof is so constructed as to be easily lowered and so exclude the sun. This same arrangement serves also for protection of the gallery during rainy weather and, being made of glass, does not exclude the light, except when the shades are drawn. The gallery is sufficiently wide to offer a complete, thoroughly ventilated shelter in any weather, and is chiefly intended for the carrying out of the rest in the open air, and also serves as a covered way for communication with the two cottages, which contain in two stories twenty single rooms each for the accommodation of patients. In the arrangement of the rooms in these cottages I have adopted the plan which has given most satisfaction in other sanatoria. All rooms face south and open into a corridor behind them, which leads into the open and to the gallery. The porches and verandas in front of the bed-rooms I have intentionally avoided, although they form a special feature in many excellent sanatoria, as, for instance, the Ventnor Consumptive Hospital. Although I acknowledge their great advantage in hospitals for advanced cases, because they allow an easy access to the open air, in a sanatorium intended for those not too feeble to walk they only take away the sunlight from the rooms and are apt to affect the purity of the bed-room atmosphere. The bed-rooms here can be flushed by air thoroughly, without a draught on the bed. The door, which in summer is replaced by an open-work shutter and has a large open transom above, is on one side of the head of the bed and receives air from an opposite window on the corridor. The window extends to the floor, so as to allow a thorough flushing of the air space on the floor. Bath-rooms, water-closets and lavatories I have put in a small annex built out to the north of the cottage and separated by a little hallway. This arrangement makes them easily accessible from every room and still sufficiently isolated to prevent any possible sewer-gas or other contamination of the air.

The space thus enclosed by the three cottages and the galleries is perfectly sheltered from the most prevailing winds in winter and in summer, abundantly ventilated and cool in the shaded parts. Within this space I have placed a raised pavilion, which is to have only a roof and removable walls toward the north. This pavilion is intended for manual occupation of patients whose condition permits such. For the same purpose the grounds around it could also be utilized for gardening and other occupations useful and diverting to the patients.

It is often surprising to what extent rest in the open air in our winter climate can be carried

out, provided the wind can be kept off by adequate shelters. I have been able to keep patients out-of-doors throughout the winter in Chicago, where this season is not renowned for mildness. With a few planks and screens I was able to construct a most serviceable fresh-air gallery on a porch, while blankets, furs and hot-water bottles, together with a steamer-chair, completed the outfit. I was somewhat astonished to read in the Transactions of this Association of last year, in the discussion of a paper read by Dr. Gardiner, that he was able to keep his patients out-of-doors in Colorado for five and a half hours daily on the average. I have been able to reach this average, counting the winter from November 1st to May 1st, in most cases, and even reached six and a half hours in some. I feel certain that with greater facilities at command this time can be increased even in our climate. I do not propose to discuss the value of these prolonged out-door recreations, but I must mention that as far as my experience goes I have found them of the greatest value, showing in gain of weight, reduction of temperature and general improvement not to be attained alone by the other measures applied at the same time, as cold and cool baths and abundant alimentation; and I have also the distinct impression that the same cannot be accomplished in well-ventilated rooms. Of course they are most important, but the life of a consumptive must be out-of-doors.

I hope you will not think me too radical and dogmatic in my advocacy of the open-air plan, but during a period of some years spent with tuberculosis patients, I convinced myself of the enormous value of an open-air régime and the disadvantage and often detrimental effect of half measures. I have seen patients to whom the mere suggestion of going out-of-doors in winter or of cold water applied to their skin sent a visible shudder down their backs, later becoming most enthusiastic advocates of their régime. To carry out a plan of this kind in private practice among the poor meets with almost insurmountable difficulties. In a sanatorium where soon a stock of model patients is trained these measures can be carried out with comparative ease and to the greatest benefit to those most concerned.

In my plan I have figured on single rooms for each patient. That under given circumstances wards may be substituted hardly needs mention in the light of our present knowledge of how to avoid infection from patient to patient. They have been adopted in other institutions and the prejudice which was encountered in their planning soon yielded to the good results obtained in them afterward.

As to the interior finishing and furnishing, I have but little to add. Everything apt to catch dust must be avoided. Linoleum or some other washable material should be used on the floors. A good heating-plant is of great importance and a water-supply to each room or ward most desirable. These are points which in our days of sanitary engineering, architecture and plumbing

have become much appreciated and are applied in hospitals as well as residences. It would lead too far to enumerate all the details. It need only be said that simplicity and a cheerful appearance should be guiding features. The Rutland hospital is a model in this respect also.

One point which I had in mind in recommending a water-supply to every room or ward needs attention. I mean to facilitate hereby the carrying out of hydrotherapeutic appliances. Usually in sanatoria there is a separate douche-room, generally in the basement, where all patients go for their douche, sponge or whatever they are directed to take. I have always found this complicated and it does not induce the patient to carry it out after his or her discharge, while if we place in every room a round, flat, tin tub which, when out of use, can be put under the bed, and teach the patients how to take their sponge- or bucket-bath themselves, or have an attendant give it to them until they are able to do it themselves, we introduce a most valuable measure into their régime with comparatively simple means.

As to the management of such an institution, I should suggest to put the superintendence into the hands of one person of executive ability and proven knowledge of the requirements in such an institution, one who has sufficient authority over the patients to induce them to adhere strictly to the prescribed régime, and who at the same time is able to keep an eye on the kitchen. Such persons are rare, but they can be found, and I feel inclined to believe that such a position would better be filled by a specially-trained nurse than by a physician. Of course the sanatorium should have a staff of physicians, who decide on the general plan to be followed and who by regular visits satisfy themselves that everything is in good order and give detail directions. But one single head to such an institution I consider of very great importance and I am certain in time to come the larger institutions will train nurses for such purposes, who in every respect would merit the confidence of the medical staff as well as of the patients. Besides a clerical attendant and three nurses, together with the personnel of the kitchen, grounds, heating-plant, etc., no other attendance should be needed, as most of the other work could and should be done by the patients themselves.

Of course the plan has to be modified according to the pecuniary circumstances of the patients which the sanatorium proposes to receive. For the same reason the rates which each patient has to contribute to the expenses of the institution will vary.

This project, which I have the honor to submit to you, necessarily cannot be more than a sketch and I shall be glad if other important points are brought out in the discussion. My desire was to call attention to one of the many branches in phthisiotherapeutics—the construction of a sanatorium—which in general does not receive the interest it deserves. The medical man who is interested in the subject has to be a

little of everything, besides mastering his own profession—physicist, architect, business-man, meteorologist, climatologist, and last, but not least, cook. And not as "*feu Cyrano de Bergerac; qui fut tout, et qui ne fut rien.*"

The antituberculosis movement which is now sweeping over the civilized world, led by crowned heads and supported by distinguished men, has already accomplished much good by creating an interest in a subject which has been treated most indifferently. But a movement of this kind, in order to be of lasting benefit to humanity, has to have a more substantial basis than the mere education of the public through written or spoken advice. The appeal for the erection of sanatoria should not be put at the tail-end of the program, but should become the watchword of the movement. Tuberculosis will never be stamped out by indirect measures alone. Improvements in public hygiene, the spreading of the population of cities over larger areas, facilitated by rapid means of transportation, will accomplish the result if it ever can be accomplished. I fear that if we cannot base our efforts on the tangible foundation of results accomplished within reach everywhere, the movement so successfully begun will vanish like a castle in the air.

This Association, under whose auspices much excellent work has been done on the subject of tuberculosis, and which has as its members men who have been pioneers in sanatorium work in this country, would be the natural leaders in a National movement to accomplish definite ends.

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COOPERATION OF THE PUBLIC SCHOOLS IN TEACHING "GOOD TEETH, GOOD HEALTH."

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"Whatever we wish to see introduced into the life of a nation must first be introduced into its schools."

In my office there is a motto, "Good Teeth, Good Health," suggestive of the central thought of this paper. In many cases it has made a deep impression upon the mind of the patient, whose eye has caught the inscription as he entered the room, and he has been prompted to read the lines attached to it:

Without good teeth there cannot be thorough mastication.

Without thorough mastication there cannot be perfect digestion.

¹ Read before the American Medical Association, Atlantic City N. J., June, 1900.

Without perfect digestion there cannot be proper *assimilation*.

Without proper assimilation there cannot be *nutrition*.

Without nutrition there cannot be *health*.

Without health what is *life*?

Hence the paramount importance of the teeth.

It is a noteworthy fact that a large proportion of my patients are boys and girls from six years of age upward, and young men from fifteen to twenty-four years of age. For the past twenty years I have been visiting-dentist to schools and public institutions in addition to caring for children in my office practice. The examination of many mouths has given me an opportunity such as few, if any, dentists have had of noting the condition of the teeth of young people, so that I ought to have a speaking acquaintance with my subject. It would be difficult, in my opinion, to find a like number of children in any public school (and I speak from a varied experience of nineteen years as a teacher) in as good physical condition as those who have received systematic care of the teeth. A few years ago I discovered that not one of the 500 children in one of the public institutions in my city had a toothbrush. The children of that institution are now supplied with toothbrushes, but I fear there are many similar institutions in the world where the toothbrush is never seen and the dentist never heard of.

There is a growing demand that the subject of hygiene should receive increasing attention in general education. Happily it requires less knowledge to keep what we already have than to recover it when lost. How to take care of the health or to avoid many causes of diseases may be learned. It has been estimated that half of the children born into the world die before reaching the age of sixteen. We can truthfully charge a large share of this great slaughter to ignorance or wilful neglect.

The efficiency of prevention is proverbial. Pain is undoubtedly one of the most dreaded accompaniments of physical ills. I am fully persuaded that more than fifty per cent. of dental caries is absolutely preventable by medicines internally administered which act specifically in the mouth; alike pleasing and imperative is the appeal to both ambition and intelligence to prevent, rather than to repair, the ravages of decay.

It is right, therefore, that the vast research respecting the hygiene of the mouth and control of dental disease, which has employed practitioners of dentistry for years in looking for the means of successfully preventing carious invasion of the teeth, should go for nothing in education; that this wealth of knowledge should be passed by as if it had no existence, and the young people of the country grow up as ignorant of it as if they had lived centuries ago? The problem which the science of dentistry is endeavoring to unfold, and the end which it aims to attain is to prevent the bacterial destruction of tooth-structure. If the teeth are not allowed to accumulate deposits

on either their exposed or protected surfaces, they will, it is claimed, be exempt from caries. More broadly stated the proposition is: Given the varying predisposition of different individuals to caries, which is governed by the laws of heredity and environment, the growth of micro-organisms in the mouth is in proportion to the amount of disturbance they suffer, or rest and opportunity they enjoy. This is a recognized fact and almost axiomatic.

A large amount of suffering may be avoided through proper knowledge conscientiously applied. It would be a great saving of "Young America," and thereby of all America, if every board of health imitated the example of Ontario's board, which adopted the following resolution: "That dental inspectors be appointed by local boards of school trustees to periodically visit schools and examine children's teeth, and that a dental hospital be started in Toronto for the benefit of poor children; and these recommendations be urged upon the attention of the minister of education."

It will thus be seen that school boards have been urged to take the matter up. But treating diseased teeth of school children at public expense seems entirely out of the question at present; yet why should it be less reasonable to have visiting dentists than visiting music teachers, and drawing teachers, and teachers of physical culture? The position of visiting dentist in our public schools would not be a sinecure. There would be work to do every day. Just how far he should be armed with authority might be variously decided by different school boards. In general, it may be premised that his care and attention to any individual pupil should end where such pupil's physical condition ceased to be a threat or an offense to the health of his fellows. The State, however, at once can touch the subject by attending to the question of prevention. If bad teeth could be prevented the gain to the State and the individual would be of enormous value, as it is wonderful how many diseases can be traced indirectly to bad teeth.

It is the noble privilege of the teachers of the country (who are acknowledged as safe guides and who aspire to possess an amount of physiological knowledge such as every educated person ought to possess) to promote in some degree the preservation of the teeth of those under their care; and this they can do by inculcating early and earnestly and with the emphasis of a high religious duty the principles of dental hygiene. It is a subject in which all mankind has an interest, even though it be, as it too often is, an unconscious interest. The life of every man, woman and child ought to be guided and governed by its laws. This being so, the subject should be presented and agitated in many forms until its importance is appreciated. And not the least of the benefits which will follow the better diffusion of physiological and sanitary information will be the protection of the community from the impostures

of charlatans and also discrimination in the qualifications of competent dentists.

Side by side with medical science, dentistry has grown. Now the teeth are recognized as important objects of medical study as the eye or ear. The same spirit which has led to enlisting the active cooperation of the public schools concerning measures for preventing the spread of contagious diseases of childhood should be insisted upon in the care of the teeth. A movement of physicians to secure public action on this matter will at once exert a moral force toward abatement of this evil. Mothers will be more watchful and painstaking to avoid the disgrace of decayed teeth in their children's mouths. Children will be moved to take a pride in spotless teeth; and in this age to acquire an ambition to have anything white and spotless about the person is commendable.

School life and conditions regarding caries are at their worst in our great cities and require the most urgent amendment. The inculcation of cleanly oral habits among children should be insisted upon. The hope of dentistry is to employ prophylactics instead of remedies, to prevent decay instead of treating it. It is just as important and as necessary to keep the teeth clean as it is to keep the hands and face clean, because all the food we eat must come in contact with our teeth. We do not like to eat when our hands are unclean, and why should we take pleasure in satisfying our appetites when our teeth are unclean? It is essential that a child be taught how to brush the teeth properly, and for this purpose I keep in my cabinet a toothbrush and set of teeth mounted with which I give a careful object-lesson. Printed directions are attached to the brush: "Brush the upper teeth downward and the lower teeth upward on their inner and outer surfaces, preventing injury to the gums, and effectively cleaning all the crevices of the teeth." A toothbrush drill at school is needful as any gymnastic exercise for the preservation of health. There is strong reason to believe that many diseases of the nervous system, respiratory organs, and alimentary canals, may be due to the fact that the masticatory organs have been neglected.

A paper on the theme of which I write would a few years ago have excited but little interest. To-day parents, teachers, influential citizens and even professional men, are being educated to the full comprehension of the fact that of all diseases of a parasitic nature to which mankind is susceptible, dental caries is by far the most frequent. The only proper course to pursue in dealing with this question is by persistently and intelligently educating the minds of the public as to its exact status, and whatever we wish to see introduced into the life of a nation, we must remember, must first be introduced into its schools. The school is the one force that can unify all conditions of society. Here we have the children of the nation in their entirety and we can if we will teach them that soundness of teeth is in itself one of the best evidences of general soundness of body.

We are now able to say to teachers and pupils that it has been proven beyond doubt that decay of the teeth is caused by two different processes, *vis.*, (1) chemical, (2) parasitical; that the prevention of dental caries depends, first of all, on strict cleanliness of the mouth and teeth, the importance of which cannot possibly be overestimated. The details necessary for the proper fulfillment of the same must be given in text-books, in public talks and in public press. Undoubtedly, it can be said that the toothbrush and plenty of clean water stand at the head of all measures of this nature, and that the next prophylactic means is the intelligent use of proper antiseptics. A tepid salt solution has been recommended as an inexpensive and effective antiseptic for rinsing the mouth, and where there is a tendency to bleeding of the gums powdered boric acid may be used. One thing not often spoken of in reference to cleaning teeth is the value of rinsing. Many patients know nothing about it and the average dentist does not think it worth while to mention it to them. The matter of closing the lips and forcing the water vigorously back and forth between the teeth exercises an important part in cleansing them.

An elementary outline of dental science, in language plain and intelligible, embodying a brief exposition of the actual present state of knowledge, and of so much anatomy as is incidentally accepted as authoritative, should be taught to, and studied by, all pupils of the public schools whose capacity will admit of it, and in the same manner as other like branches are taught and studied, if necessary with text-books in the hands of the pupils.

We want to emphasize the startling fact that the teeth of children have been deteriorating to such an extent that it has now become a serious matter. Of all causes of decay uncleanness is perhaps the most fertile. The clean tooth may decay—the neglected tooth must decay. It has lost its chance of self-defense.

Irregularities of the teeth, as shown by Dr. E. S. Talbot, are also on the increase, and there seems to be no plan by which the increase can be checked unless it be in the care of children's teeth and the observance of common-sense rules regarding extraction of the adult teeth. Check in the beginning irregularities which might prove mischievous if left unattended.

We want children instructed in the care of the mouth and teeth, in cleansing the whole mouth including the tongue, and the sooner this is done the sooner will the many evils arising from the present neglect be stayed. Children must be taught some system of oral hygiene. See that school children receive thorough instruction as to the utility of good teeth. The teaching which a growing child imbibes in school sticks fastest in its memory. "My teacher told me to do it that way." Young minds are very susceptible and they would readily understand the situation, especially if told the calamities liable to follow the neglect of their teeth and mouths. These same

children will soon be the parents of the community in their turn, and they would have the advantage not only of better mouths of their own, but of being in a position to care for their own children. What has been done in the treatment of zymotic diseases, namely, an improvement in the condition of surroundings, is precisely what is required respecting the teeth. Instead of regarding the teeth as foes, children should be taught to regard them as special friends, and devote to them their best care.

We want to remove the possibilities of the propagation of disease in public schools through the present condition of children's mouths and teeth, and incidentally the discomfort of parents whose children have aching teeth, sleepless nights, distorted nervous systems, bad digestion, alveolar abscesses, foul and fetid breaths. When children are in this oral condition the whole system is out of order and they are more susceptible to disease.

We want periodical and systematic examinations of the teeth of children in the primary and grammar schools, whose ages range from six to fifteen years, having in view the prevention of their destruction. It is not proposed that the examination be made by or under the school authorities, but by such adjustment with them as shall not interfere with school-work or add a burden upon teachers. Dentists, who are members of dental societies and members of the graduating classes of dental schools, recommended by the deans, could be voluntary inspectors. Their reports (charts) should be given to pupils with instructions to hand them to parents or guardians. The form might include the words, signed by the teacher, "Your child or ward has been examined by the visiting dentist, and you are respectfully advised to have his mouth and teeth attended to."

Answering the question, why do we want instruction and inspection to prevent sacrifice of children's teeth, and the accompanying effects on their health, I would say:

1. Take it all in all, care of the teeth pays in comfort, in beauty, in the conservation of health from youth to old age. "Better take pains than to have pains take you."

2. It has been demonstrated that 95 per cent. of children have their permanent teeth decayed, ranging in number from two to sixteen per child. The magnitude of the evil appears at the simple mention of the fact. Can children with carious teeth grow into healthy adults? Can a race thrive whose children are so afflicted? When one has attained full growth it may not matter much whether the food is masticated by natural or artificial means, provided it is properly done; but with children it is a different matter, and the state of our children's teeth is a question of national importance. In chronic indigestion only two persons in one hundred have sound teeth.

3. Relatively, few children have teeth filled, and those under ten years of age rarely have the dentist's care except for the extraction of loose

and aching teeth. Why is it that so large a percentage of our children, school-children, present features distorted, often due only to untimely, injudicious loss of teeth, deciduous and permanent? Because of ignorance or neglect.

4. The teeth and mouths of many children are in an unhealthy and disgusting condition, which not only injures their own health but also the health of the teachers and other children who are compelled to sit with them, it may be in overcrowded or ill-ventilated rooms. It ought not to be difficult to impress teachers with the danger which attends the exuding of pus from abscessed teeth. In every community there are those who are enthusiasts on the subject of pure and wholesome food, but whose mouths are in such a neglected condition that the air which passes through them is polluted and every mouthful of food swallowed carries bacteria with it into the stomach. The almost entire futility of sterilizing articles of diet for patients in whose mouths chronic abscesses exist, or whose teeth are covered with tartar mixed with mucus and food in a state of decomposition, need hardly be mentioned. A source of danger from decayed teeth is the possible introduction of parasites into the tissues with which the teeth are connected. Parasitic organisms are numerous in articles of food, both as usual and occasional associates, and as it is very difficult to prevent small particles of food from lodging in the cavities of carious teeth and there undergoing decomposition, it is not impossible that by such means, especially if the cavity is the root-channel of a dead tooth, a parasite might enter the soft tissues.

5. There is also another source of danger to the younger children who exchange pencils and chewing-gum, which after being in mouths mixed with pus are placed in the mouths of other innocent and unsuspecting children. These practices may be democratic, but they are vicious.

6. As to girls whose teeth are defective, in a few years they will be the mothers of the next generation. What about the claims of their children unless we now do our duty by the future mothers, and give them a chance to grow up as healthy women? Dr. D. Hayes Agnew said: "The world is becoming filled with a class of flat-breasted, spindle-limbed young women, unfitted for the varied and responsible functions of womanhood; qualifications, too, which under a different regimen and directed into proper channels would exert a most potential influence on all the great social and moral problems of the age."

The *British Medical Journal* and others have commented on the bad condition of school-children's teeth in England, "which may be looked upon as a national calamity." We have no basis for an accurate statement of conditions prevailing in this country. Teachers and casual observers believe that they are bad. No reliable information can be obtained, except under an order from the public health authorities, cooperating with school boards, providing for detailed examinations and reports.

According to Dr. Charles E. Bentley of Chicago, "In Berlin, Wurzberg, Cologne and Strasburg, Germany; in Salford and Leicester, England; Brussels and Antwerp, Belgium; Bordeaux, France; Tokio, Japan; Copenhagen, Denmark, and Canada, various systems obtain and the results are more than were looked for by their most sanguine promoters. In Toronto, Canada, no child can enter the public school who does not present a certificate to the effect that its teeth have been examined by a dentist. California and St. Louis are wide awake on this subject and are slowly paving the way for its consummation. Chicago has taken up the work in an organized way. Under the patronage of the Odontographic Society it has sent circular letters to the boards of education in all civilized countries in cities of 100,000 and over, asking them concerning such a movement and gathering data upon the subject. The classified answers will appear shortly under the direction of the Odontographic Society of Chicago. It is sufficient to say here, however, that the letter has stimulated the movement in nearly all places to which it has been sent."

And now some words of caution, in conclusion. As it is still an open question as to how far the public schools should cooperate and, unless the movement is well organized when the dentists go to school boards, we may be told that neither the necessity nor results would justify cooperation. I would say: Begin the work advisedly and as a severe piece of drudgery, but worth doing well. Have an adequate understanding of what can be done. It should not be a slipshod investigation. Such work should not be done by the teachers (who examined the eyes of public school children and the work was put forward as done by specialists, when in fact but a small fraction of the pupils were even seen by the alleged examiner), for unless done by dentists it would be an opprobrium to the profession and an obstacle to true hygienic progress. And then a mercenary motive may be imputed to the examiner—too often by his professional brothers rather than by the laity—and the whole matter fall under suspicion. If not paid for his service, it is inconceivable to some minds that a man who is really competent would devote much time to work that did not directly promise a money return; and as no fee is likely to be paid they think they have clear proof of ulterior and baser motives for his undertaking. This must, unfortunately, be expected by each investigator in this field and he must conduct himself most scrupulously if he hopes to live it down and carry through his examination and not find himself displaced by some rival, insensible to personal dignity and traditional propriety of conduct, who sees his way to coin advantage out of the matter.

If the labor is to be its own reward, the examiner will find his remuneration almost too abundant. It has been shown that, with proper preparations, a fairly complete examination of an individual can be made in from three to five minutes; but this is by most unremitting activity and no examiner can do many hours of such work a day.

If he studies fifty in three hours he has well earned a rest. After ten such days, although scattered, the work would pall on any appetite not insatiable, and an investigation embracing one thousand school children made by or under the direction of any one dentist may be set as the limit for work pretending to be thorough. If not thorough, one such examination has probably as much worth as a million. Many points of real scientific value remain to be settled by investigations of the juvenile population which is presumably healthy. Much sound hygiene can be helped on by proper studies in this important field. May we hope that many will think of it as it deserves and weigh well the cost of participating in its trials and labors.

TUBERCULOSIS AND MODERN METHODS FOR ITS PREVENTION.¹

By H. H. VINKE, M.D.,
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THE only excuse I have for bringing this subject to your attention is its extreme importance. Its importance is at once apparent when we learn that fully one-seventh of all mankind dies of tuberculosis and that all epidemics of contagious diseases combined—typhoid fever, smallpox, which is so greatly dreaded, scarlatina, diphtheria, cholera, etc.—do not cause nearly as many deaths. It is more universal than any other disease and claims its victims in all climates. It is certainly surprising and somewhat disappointing that this should be so, for we now know that tuberculosis is a contagious disease and that it is preventable. Although the tubercle bacillus does not constitute tuberculosis and although a receptive and suitable humus and other conditions are necessary to the development of this disease, it cannot be denied that the tubercle bacillus is the most important link in the chain of the different morbid conditions constituting tuberculosis. By a suitable humus we mean inability on the part of the body-cells to effectively resist the invading tubercle bacillus and prevent its growth. Few doubt to-day that tuberculosis is contagious and that in only extremely few cases can direct transmission from parent to infant be traced; in fact, we are safe in stating generally that tuberculosis is only exceptionally transmitted, but almost invariably acquired. Predisposition to this disease, or inability on the part of the body-cells to resist the invasion of the tubercle bacilli, may be transmitted and is transmitted, but such predisposition does not constitute tuberculosis; the presence of the tubercle bacillus is essential to make the chain complete, to render the existence of the tuberculosis possible.

Without the tubercle bacillus, on the one hand, we cannot have tuberculosis; without inherited lessened resistance on the part of the body-cells, on the other hand, we cannot have tuberculosis.

¹ Read before the St. Charles County (Mo.) Medical Society, May 15, 1900.

We cannot change faulty inheritance, but we can prevent or at least limit the possibility of the invasion of the system by tubercle bacilli. And inasmuch as the treatment of the tuberculosis, in spite of the progress we have been making, is as yet unsatisfactory, its prevention claims our careful attention. If the tubercle bacillus plays such an important rôle in the etiology of tuberculosis, it is essential to study through what avenues this bacillus or fungus, as some believe it to be, reaches the economy. The most usual way in which the system is infected is by the inhalation of air containing the dust of the sputum or of the oral and nasal discharges from a patient suffering from tuberculosis. Although it is probable that human and animal tuberculosis differ materially, and that the danger of infection from lower animals is not as great as is usually believed, there can be no doubt of the propriety and judiciousness of thoroughly boiling and cooking all foods derived from the animal kingdom. It is probable that the gastrointestinal secretions ordinarily in the adult would successfully resist the ingress of the tubercle bacillus into the system, but in infants and children such resistance would be much less effective. In a general way it may be stated that by far the most common source of infection is by the inhalation of air contaminated with the tubercle bacillus derived from man, and if all sputa containing the tubercle bacillus were at once destroyed or thoroughly disinfected, tuberculosis would become a rarer disease. It becomes, therefore, the sacred duty of every physician to teach the laity that tuberculosis is contagious and that in order to prevent infection of healthy individuals, the sputum and all excretions from tuberculous patients must be carefully disinfected. This can readily be done without giving offense to the unfortunate patient and without causing him to be looked upon with dread and alarm by other members of the family, by informing him and the family that nearly all diseases of the lung are infectious, that even a common cold is contagious, and that by using such extreme care in disinfecting the sputum and other excretions containing the tubercle bacillus we not only protect the healthy members of the family, but also protect the patient against reinfection. It cannot be denied, however, that in spite of these precautions the consumptive is a constant danger to society, and there can be but little doubt that society has a perfect right to protect itself against this dreadful destroyer of mankind by isolating those suffering with the disease in sanatoria, situated in places chosen for their healthfulness and fitted out with superior conveniences and arrangements for effecting a cure.

Every State, yes, every county, should have such a sanatorium, where at least those can be taken who cannot properly be treated at home, or who live in crowded dwellings, and are a constant source of danger to many lives. Isolation and treatment in sanatoria would be of immense benefit to the patient, for it would greatly en-

hance his chances of being restored to health, and it would be of incalculable benefit to society, for it would remove from intercourse with his fellow-men an individual who is a constant carrier and disseminator of thousands of deadly germs.

If it be true that tuberculosis patients are such a constant source of danger to their fellow-men, the very earliest recognition of tuberculosis in an individual is extremely important. The use of tuberculin, although not a success as a remedial agent, is known to be of great value as a diagnostic agent, but scarcely sufficiently devoid of danger to be a safe means for general use in determining the existence of tuberculosis. The early and frequent examination of the sputum by the microscope is certainly a most valuable means of arriving at a positive diagnosis, but some patients expectorate pus only late in the disease, few general practitioners are expert microscopists, and many patients have not the money to have the sputum examined at a laboratory. It is to be hoped that the time will come when every city in the Union, even the smallest one, will have an expert microscopist in the employ of and paid by the municipality.

Physical exploration readily discloses the presence of tuberculosis in an advanced state, but even an expert clinician may fail to recognize its presence by this means in its earlier stages. There are, however, a few simple modes of examining which reveal the presence of tuberculosis in its earliest stages and with reasonable reliability. The most valuable among these is a careful study of the temperature of the suspected patient. If daily examination in the afternoon of such a patient shows the constant elevation of temperature of from three-quarters to one and a half degrees for a week or two, which elevation of temperature cannot be otherwise explained, we may conclude that our patient is suffering from tuberculosis. This is a simple and reliable method of determining the presence of tuberculosis in its earliest stages, but although simple and generally known, it is much neglected. A considerable and fairly constant dilatation of the pupils is an early symptom of tuberculosis, and when found should lead us to look for corroborative evidence of this disease. Increased frequency of respiration in the absence of other lung and heart-lesions points to phthisis pulmonum. Prolonged expiration, the so-called "cog-wheel" respiration, is another early symptom. These are some of the more prominent objective symptoms of tuberculosis; the early subjective symptoms are marked emaciation and progressive weakness, pain of a pleuritic character over the region of the affected portion of the lung, night-sweats, etc. Hemoptysis, although usually occurring late in the disease, is occasionally an early symptom and in the absence of any mitral cardiac lesion a very important one.

In conclusion I will say I sincerely regret that I am unable to offer anything new on this subject, but if this short presentation tends to con-

firm in you the conviction that tuberculosis is contagious, that a special sanatorium is the proper place for the consumptive, and that it is our duty as medical advisers to instruct the laity to this effect, the object of this paper has been fulfilled.

THE ABORTIVE TREATMENT OF ACUTE MASTOIDITIS.¹

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At the beginning of this paper I am disposed to make an apology to the members of this Society for bringing before them such a seemingly threadbare subject, but in looking over the otological literature of the past two years I find the treatment set down for this disease by many competent writers so directly at variance with that of my own experience that I am prompted to bring the subject before you, not that I have anything especially new to impart as to its treatment, but rather to place it before you for discussion that I may learn as much as possible from the experience of others.

It is said by many who are practising otology to-day that the only rational means of aborting an acute inflammation of the mastoid is to apply either dry or moist heat around the external ear and over the mastoid process. It has also been said that heat so applied will abort four out of five cases of acute inflammation of the mastoid structures, besides making the patient at the time feel more comfortable and cause the existing pain to disappear.

Wishing to thoroughly test this method of treatment before condemning it, I tried it in ten cases of acute inflammation of the mastoid, four in children under eight years of age, and six in adults. The heat was applied in six cases by having hot water pass through an ordinary Leiter coil at a temperature of 132° F. The coil was placed close to the mastoid, in the usual manner as when ice is used. This was kept up continuously for thirty-six hours. At the end of twenty-four hours the coil was removed and tenderness quite as marked as before treatment was found in two of the cases. In the four other cases the tenderness upon pressure had increased. The coil was then reapplied and at the end of thirty-six hours was removed and ice water substituted where before hot water had passed through the coil. The result was that in twenty-four hours after applying the cold treatment the tenderness had practically disappeared from five of the six cases. In the sixth there was still marked tenderness, but not to such a degree as before the ice was used. In this sixth case the coil was reapplied for twelve hours and when taken off there was only very slight tenderness

present with even greater pressure over the parts than had been used twelve hours previously.

In the other four cases a hot-water bag as warm as the patient could bear it was kept against the mastoid. This was continued for thirty-six hours and upon examination the tenderness in two of the cases had diminished, while in the other two there seemed to be no change as to the tenderness and swelling. Wishing to give this method a still further trial, the heat was continued for twelve hours longer, the result being that three of the four cases increased in tenderness and swelling to such an extent that twenty-four hours after the removal of the heat they were operated upon, and in all three pus was found in the mastoid antrum and cells.

The fourth and last case exhibited at the time of the heat removal less tenderness and swelling than at the previous examination twelve hours before. This case was kept under observation for four days more and during this time there was always some tenderness upon pressure over the antrum and at the tip. The patient was then allowed to go home, only to return in five days with all of the former symptoms intensified. This time an ice-coil was applied and left in place for thirty-six hours, at the end of which time the tenderness had all disappeared, as well as the pain and post-aural swelling which had existed. This case was kept under strict observation for three weeks, being seen every other day, and during this period no symptoms of the former trouble could be found. In all of these cases there had been spontaneous perforation of the drum membrane previous to their coming under observation, and a purulent discharge was present in seven of them. In the other three cases the discharge was serous. Four of the ten cases exhibited some swelling back of the auricle and over the mastoid when first coming under observation. Of these four only one was in a child, the other three being adults. In all the cases the middle ear was drained freely and irrigation with 1-4000 bichloride practised. In short, precisely the same method was followed out as when cold treatment was used in my other cases. These ten cases were taken one after the other, as they presented themselves day after day for treatment. Certainly you will agree with me that here such treatment was not a success.

The successful abortive treatment of acute mastoiditis in a very large proportion of the cases is a simple matter, and without going too much into detail I propose to give here the treatment ordinarily followed out in a routine case when it comes under observation.

Treatment.—When the case presents itself for treatment we usually find on inspection either a purulent discharge coming from the external auditory meatus of the affected side, or a serous discharge, depending largely upon the duration of the disease or whether the middle ear has become subsequently infected after rupture of the drum membrane. In a very small number of the cases we find no discharge of either character,

¹ Read before the American Laryngological, Rhinological and Otolological Society, Philadelphia, June, 1900.

and an inspection of the drum membrane shows us, usually, a bulging with a general redness over the whole surface of the drum and also marked congestion and swelling of the superior and posterior canal walls. In about half the number of cases coming under observation there is in addition marked tenderness over the mastoid, particularly that part situated directly over the antrum, a small amount of swelling directly behind the ear. In all cases so coming under observation, if the middle ear is not being drained sufficiently through the opening made by Nature, then this opening is enlarged by a free incision, and if the upper portion of the middle ear or attic be infected this incision is extended upward, opening Shrapnell's membrane, and still continued outward and backward through the tissues of the superior canal wall, thus making what has sometimes been called an internal Wilde's incision. Rarely have I seen a swelling of the superior or posterior canal walls, due to middle-ear inflammation, without a corresponding fulness in the attic region. But should it occur, this incision should be made freely through these structures. This done, the patient is placed in bed, absolute rest enjoined, an ice-coil applied snugly over the mastoid process, a free purgative administered, the canal irrigated every two or three hours (depending upon the character of the discharge) with a warm solution of bichloride of mercury, 1-4000, and the patient kept on a fluid diet. The coil is left in position for twenty-four hours, and at the end of this time we usually find upon its removal much less tenderness than had existed before and if all swelling has not entirely disappeared it has markedly diminished. Inspection of the canal shows us much less swelling in the walls where the day before it was marked; the drum membrane no longer bulges, has lost much of its inflammatory tint, and altogether we have the case going on to a rapid convalescence.

If after twenty-four hours of this treatment the tenderness over the mastoid has not almost entirely disappeared, then the coil is reapplied for twelve hours longer, the irrigation kept up as before, and when at the end of thirty-six hours from its first application the coil is left off altogether we have a case where the other mastoid symptoms have ceased, and only a diminishing discharge from the middle ear each day is left to treat, so that in a week's time the majority of these cases are discharged cured and remain cured, unless they are unfortunate enough to contract a subsequent inflammation of those structures.

In a very small percentage of the cases there will still be a marked tenderness over the mastoid at the end of thirty-six hours when the coil is removed. In these cases, if the temperature be under 100° F., the middle ear draining freely, and there is no increased fulness of the posterior or superior canal walls, then the coil is replaced once more for a period of twelve hours, and over

one-half of this type of cases will from that time convalesce rapidly.

If, of course, at the end of this period all the symptoms and physical signs remain the same or have increased, then there is nothing further to be done but to open the mastoid and proceed with the classical operation.

In young children when the tenderness exists to any great degree after thirty-six hours of this treatment we should not again reapply the coil, but leave it off for a few hours and if the tenderness and pain still be present, then the mastoid should be opened without further delay.

As to the application of moist heat to the mastoid of a patient suffering from acute inflammation the result of acute middle-ear trouble, I am absolutely opposed to it. To be sure it does in a fair share of the cases diminish or stop the pain, but it does so at the very great expense of softening and undermining the tissues beneath it, so that when removed the disease can and does involve very rapidly this softened tissue.

I believe that at the outset, or when we first see these cases, we can by examining the discharge from the canal give a fairly definite prognosis at this early stage as to whether or not the case would go on to operation. In all the cases coming under my observation the discharge is examined and where the streptococcus is found in abundance in this discharge eight-tenths of the cases subsequently have to be operated upon, whereas, on the other hand, when the streptococci are absent, or only present in very small numbers, few, if any, of the cases reach the operative stage.

62 West Fifty-second Street.

MEDULLARY NARCOSIS DURING LABOR: A PRELIMINARY REPORT.

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STIMULATED by the reports of Tuffier in *La Semaine Médicale*, in which appear the results of 63 operations painlessly performed by the use of cocaine injected into the subarachnoid space, the idea presented itself to me to utilize this method in order to mitigate, if not entirely allay, the agonizing pains of labor. Not until the work of Kreis appeared was I able to begin my experiments. The present article is simply and purely preliminary. The cases are too few to justify absolute deductions, yet they are sufficient in number to warrant me in stating that in the lumbar cocainization we have a method which is of the greatest value in producing analgesia, which checks almost entirely the pains of labor without, so far as personal experience goes, the least danger to mother or child. It is very astonishing and awe-inspiring to those of us who have seen many labors and heard the agonizing and maniacal shrieks of these poor women, to see the "parturient," under the influence of cocaine, lie

quietly in bed, feeling only some indescribable sensation, but without pain, bearing down when told to, and giving birth to her child without her knowledge, and only cognizant of the fact when the first cry of the new-born is heard. This truly is the "Utopian period" for which we have all longed. All this has inspired me with the greatest confidence in the method. The cases to be presented make very interesting reading and give us plenty of food for thought. Moreover, many minor operations were performed and all with very little or no pain. Pain if present was certainly bearable and infinitely lessened under cocaine as compared to such manipulations done without local or general narcosis.

Complications of a severe grade never occurred. Such are the observations of Tuffier and Kreis. Disagreeable, although very evanescent, features frequently occur. In fact none of my patients escaped without some evidence of general disturbance, such as nausea, vomiting, severe headache, throbbing and fulness in the head, slight increase in pulse-rate, chilly sensations and elevations of temperature up to 103° F. on the evening of the day of operation. That this is not due to the cocaine itself is proven by a control experiment in which, by mistake, a saline solution was substituted for the cocaine. That it is not due to sepsis in the ordinary sense of the word is proven by the fact that some after-effect, more or less severe, is noted in every case. It is most probable that these symptoms are due to a disturbed intraspinal pressure, whether diminished or increased we are not in position to state. In the case in which the salt solution was used by mistake, the pains of labor were not a bit influenced, but all the after-symptoms, such as we are prepared to encounter after cocaine injections, appeared. Fortunately all these disagreeable after-effects can be readily controlled by the use of 1/100 grain of nitroglycerin alone or combined with small doses of morphine. At best, unless very annoying, no attention need be paid to them, for in my experience they passed off without treatment in from six to twenty-four hours. Motor disturbances, so far as the uterus and its contractions are concerned, were not noted. In from seven to twelve minutes after the injections the pains were very much diminished or entirely allayed. The analgesia continued about three hours when the woman began gradually to feel the painful uterine contractions.

Reflex action of the abdominal muscle was found only in those cases in which cocaine was incomplete and was then accounted for by presence of some pain. When complete analgesia occurred there was no spontaneous bearing down and the abdominal muscles were not voluntarily called into action. Only on command did the patient bring her abdominal muscles into play and then as powerfully as if no cocaine had been used. Again, it is interesting to note that the loss of the pain sensation proves without doubt the falsity of the idea that uterine contractions are in any way dependent upon the pain

produced in the pelvis by pressure of the fetus either upon the uterus in part or as a whole, or upon the tissues lining the pelvic cavity. If the needle be left in the spinal canal during a uterine contraction there is a decided increase in the escape of spinal fluid over that of the period between the contractions. This is probably due to an increase in tension in the vascular system within the spinal canal during the height of the pain.

The method employed at the Maternity Hospital is essentially that of the House Surgeon, Dr. Stone, to whom I am greatly indebted and profoundly thankful for his great interest in all the cases and the great skill and care he exercised in their behalf. All the punctures were made by him and notes accurately taken either by him or under his direct supervision. I shall describe the operation in the words of Dr. Stone. The patient's back, from the coccyx to the middle of the dorsal vertebrae, is thoroughly scrubbed with tincture of green soap and alcohol and ether. This is followed by a saturated solution of permanganate of potash which is removed by a supersaturated oxalic-acid solution. The entire area is then covered with sterile towels. A needle about ten cm. long is employed with a metal hypodermic syringe, both of which are boiled ten minutes. The patient is placed on the side with arched back. The thumb of the left hand is placed on the spinous process of the fourth lumbar vertebra. (This point may readily be found by locating the deep depression between the spine of the last or fifth lumbar and first sacral, the posterior landmark of the external conjugate, or, in very fat women, a line drawn joining the highest points of the crista ilii will pass over the center of the fourth lumbar vertebra and is a reliable guide.) The needle is inserted half an inch in front of and just outside the edge of the thumb at an angle of about 165°. The direction of the needle is from below upward and without inward. If the point strikes the lamina it is to be moved gently up or down until the space between the vertebrae is felt. The puncture may be made either between the third and fourth or fourth and fifth vertebrae. The point is then pushed slowly and gently downward until the spinal fluid is seen running out. Ten minims of a cocaine solution, representing gr. 1/6, are now injected and the needle withdrawn. This is all that is necessary.

Case I.—H. B., aged thirty-three years; multipara; anemic; double femoral hernia. August 7th, in labor at 11 P. M.; presentation L. O. A. August 8th, membranes ruptured 3.30 P. M., os fully dilated; 3.48 P. M., cocaine injected; 3.56 P. M., pain sensation dulled and delayed; 3.59 P. M., muscle and motor sense not affected; sensory paralysis complete below the level of the umbilicus; uterine contractions every two minutes; patient has no painful sensations; 4 P. M., child born spontaneously without the knowledge of the mother. 4.22 P. M., placenta born spontaneously and after a lapse of ten minutes the mother asked if after-birth had come. The fol-

lowing afternoon the temperature rose to 100.5° F., but fell to normal in eight hours. Three hours after the injection the patient experienced a tingling sensation in her legs and thighs. During the next ten hours a slight throbbing headache was felt which disappeared in twenty-four hours without medication.

Case II.—K. S., aged thirty-five years; multipara; previous labors normal with great deal of pain during the second stage; physical condition poor; patient has hydramnios to extreme degree. August 11th, 2.30 P. M., patient went into labor; 6 P. M., waters broke; cervix presents; os admits four fingers; head presenting above but fixed at brim. August 12th, 9 A. M., pains all night, no effect on os; contractions have now ceased. August 12th, 1.47 P. M., lumbar injection of gr. 1/6 cocaine; 1.52 P. M., sensation to pain diminished and delayed; 1.56 P. M., absolute sensory paralysis below the umbilicus.

Manual dilatation was begun and during its performance the patient gave no evidence of knowing what was taking place. The operation was as easily carried out as under chloroform narcosis. The head was then above the brim. It was then decided to leave the patient unmolested to see if labor would proceed spontaneously without any complication. She was therefore put to bed, version or high forceps being abandoned for the sake of the experiment. In 12 hours the woman broke out in a profuse sweat; temperature, 102° F.; pulse, 90; respiration, 60; slight headache. In twelve hours the condition returned to normal. The following day labor-pains again appeared and in five hours the child was born spontaneously; normal, severe, second-stage, labor pains.

Case III.—Proved to be a control test. S. D., primipara, aged twenty years. August 12th, in labor at 6 A. M.; in twelve hours os fully dilated; 1/6 gr. cocaine injected; no effect whatsoever. In forty minutes another 10 minims of the same solution and still no effect. As the patient became very nervous and hysterical it was decided to use chloroform and deliver by forceps. Later on, having the cocaine solution tested by various methods, it was found totally inert. This case proved to be an excellent control test, as did the case in which the saline solution was used by mistake. And here also in three hours the patient complained of headache, tingling in the legs, slight nausea and vomiting. In fourteen hours the temperature rose to 102° F.; pulse, 100; respiration, 28. Condition returned to normal in eight hours.

Case IV.—M. I., aged thirty-eight years; multipara; condition excellent; previous labors normal. August 13th, 3 P. M., in labor; V. L. O. A.; head in cavity; 3.48 P. M., cocaine gr. 1/6 injected; 3.53 P. M., sensation below umbilicus delayed for pain; 3.55 P. M., total sensory paralysis below umbilicus. Patient had no knowledge of the uterine contractions which occurred normally every two minutes. 4.28 P. M., head

at outlet and forceps applied without the patient being aware of the operation. 4.32 P. M., patient delivered; the mother was conscious of the traction alone. She wished to know why she was being pulled to the bottom of the bed. 4.40 P. M., perineum repaired without pain; 4.55 P. M., placenta expressed, sensation of mother was as if something warm were passing through the vagina; 5.15 P. M., sensory paralysis still present; 6.45 P. M., sensation restored to lower part of body; 7 P. M., patient complained of intense throbbing headache referred to frontal lobes; 7.45 P. M., morphine, gr. 1/4, nitroglycerin, gr. 1/50; patient felt cold and was shivering; 8 P. M., vomited, head symptoms less; rise of temperature to 101.5° F.; pulse, 88; respiration, 22; twelve hours later patient in normal condition.

Case V.—L. M., aged thirty-five years; multipara; admitted to surgical ward with cellulitis of leg and thigh. August 18th, 10 A. M., membranes rupture spontaneously; no labor pains. Transferred to septic ward; V. R. O. A.; os nearly dilated; prolapse of cord, pulsation 120 per minute; no contractions. 11.45 A. M., pulsation had fallen to 100; indication to deliver child. 12.45 P. M., cocaine injection, gr. 1/6; 12.50 P. M., sensation to pain delayed and one minute later complete sensory paralysis; slight nausea and vomiting; burning sensation along spinal cord and feeling of cold in feet and legs; podalic version was performed without any pain to mother, although she expressed a feeling of suffocation when the hand was being introduced into the uterus; 1 P. M., child born by extraction. Mother had no knowledge of its birth. During the version the uterus contracted firmly around the operator's hand so that manipulation was very trying.

Case V.—R. M. aged twenty-six years; primipara. August 19th, 9 P. M., labor began with rupture of the membranes; child presenting foot. August 20th, 6.30 A. M., os fully dilated, pains not severe nor frequent; 7.21 A. M., cocaine injection, gr. 1/6. During the next thirty minutes the only change noted in the patient's condition was slight dulling and painful sensation to pinprick and slightly delayed pain sensation; 7.51 A. M., injection repeated; patient complained of burning in lower extremities; nausea and vomiting; profuse sweat; 8.20 A. M., sensation entirely gone; hand introduced without pain, both feet brought down; 8.26 A. M., child delivered in usual fashion unknown to mother, a second child is found in utero; 8.50 A. M., hand introduced into uterus, macerated fetus discovered; 8.55 A. M., child delivered, mother still oblivious of any pain or discomfort. The uterus continued to contract regularly and strongly up to birth of first child; 9.15 A. M., neither placenta having come away, the Credé method was unsuccessfully tried; 9.35 A. M., an attempt was made in succession by the entire house-staff to remove the placenta manually, but because of the pathological adherence and the

spastic contraction of the uterus it was found impossible to remove them. During all this manipulation the patient did not complain of pain or discomfort. Chloroform was now administered to the surgical degree. Dr. Stone then made the attempt but it was still found impossible to remove placenta, as the same conditions obtained as during the cocaine analgesic, *i. e.*, placental adhesion and a spastic uterus. The uterus was accordingly packed with gauze and the patient put to bed. At 2 P. M. I made the attempt to remove the placenta under local cocaine narcosis, 1/6 gr.; 2.08 P. M., sensation delayed and dulled, the hand was introduced and the placenta peeled off. The uterine contractions were not as strong as normal, nor did they materially interfere with the manipulation; 3.30 P. M., nausea and vomit; sensation to pinprick dull, anesthesia continues; 5 P. M., temperature, 100.8° F.; pulse, 90; some headache, but not severe; no medication employed and the condition became in every respect normal in twenty-four hours. This patient received half a grain of cocaine in less than seven hours.

As to the future utility of this means of annulling the pains of labor we have little to say. So far our results have been more than satisfactory and from our limited experience we can honestly state we apprehend no danger. Whether remote dangers are to be anticipated from the use of cocaine in this fashion, our cases are too recent to give us any clue, accordingly, I am not as yet prepared to recommend such measures in private practice and will not do so until my hospital experience shall fully justify it. In addition to the cases reported above I would suggest the use of this method in cases of prolonged and tedious labor; anesthesia can be produced without interrupting the course of labor in any way. If we could but put in writing the expressions used by the women whose cases have just been narrated, the blessing showered upon us, their thankfulness to all about them, nothing further need be said. One more word and I am done, and that is that it might be of great value in cases which would otherwise demand the introduction of the hand under chloroform for purposes of exploring either the pelvic or presenting part. Here a cocaine injection ought to be of the greatest value and assistance.

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MEDICAL PROGRESS.

Suprarenal Extract in Rhinology.—Another very favorable report is made of the use of the suprarenal extract in nasal diseases by S. Oppenheimer (*N. Y. Med. Jour.*, August 18, 1900). The active principle, or ischemic element, is probably in the medullary portion of the gland and is evidently a product of the normal glandular metabolism. On account of the animal matter present in the powder, putrefactive changes

quickly occur and hence the solution cannot be kept any length of time. The drug possesses two distinct actions when locally applied to a mucous membrane, the first being the absolute blanching of the parts, followed by an almost imperceptible constriction which rapidly increases until in some regions the mucous membrane may be contracted down upon the osseous structures. In epistaxis it is one of the most certain remedies employed. After considerable experience the author does not believe that the drug possesses any influence over hay fever when taken internally, but has an almost immediate effect when applied locally by spray or pledget of cotton, and this result may be maintained by directing the patient to use the spray at sufficient intervals. In operative procedures upon the upper respiratory tract it is strikingly indicated. Many simple operations may be performed with the loss of practically no blood at all. The method giving the best results seems to be to apply a pledget of cotton saturated with the adrenal solution to the site of operation for five minutes. The solution is made by adding ten grains of the extract to a dram of sterile water and allowing it to macerate for twenty minutes when it is filtered, and glycerin or boric acid added. The pledget soaked with suprarenal solution is then replaced by one saturated with cocaine or eucaine for five minutes. A fresh pledget of cotton with the adrenal solution is again applied for the same length of time, and when it is removed the parts will be found perfectly bloodless and totally anesthetic. The adrenal has no action upon the blood itself; it is perfectly clean and does not cause subsequent irritation from firm large clots, but it is not anesthetic. It may be placed in the hands of the patient with the confidence that no habit will be formed.

Treatment of Morphine Habit.—According to the experience of J. H. McBride (*N. Y. Med. Jour.*, August 18, 1900), comparatively few people are permanently cured of the morphine habit. The whole moral character of the patient has been altered so that even when the drug has been entirely removed for some time, the will-power is usually insufficient to resist the temptation to relieve the mental as well as physical suffering which is liable to recur at times. As the drug is withdrawn it leaves a weakened hyperesthetic condition of the nervous system that involves the mentality as well as the body, and which raises the suffering to an intensity that is perhaps not excelled by that of any kind of sickness. In reducing the drug it is well to appreciate that small doses relieve the suffering nearly as much as large ones, so that in a rapid reduction method, which is the one usually followed now, when large doses have previously been taken considerable diminution can be made each day until a daily amount of one and a half or two grains is reached. The reduction should then be made much more gradual. An important principle to

note is that the patient should be allowed to recover from each reduction before another is made. To relieve the general and intense feeling of uneasiness and pains in the limbs, the best remedy is frequent hot baths. The mixed bromides are very good but bromism should never be produced. Of the tonics, quinine, nux vomica and strychnine are the best. Rest in bed and daily massage are very beneficial to relieve the suffering. When the patient has quit the drug, and may be comfortable without it, the cure is still far from complete, for to turn him loose with his shattered nervous system and weakened will is to invite a return to the habit with additional injury. It is necessary to give the patient a thoroughly normal environment which, acting unconsciously over a long period without a hint of the end for which it works, will enable the person to change the morbid fashion of his thought and regain the habits of sanity. These people are men in rights and privileges, but they are children in impulse and unregulated lives.

Action of Gelsemium Upon Central Nerves.—

Since Nissl's method of staining nerve-cells has come into general use by the experimental pathologist, the action of numerous drugs upon the nervous system has been microscopically investigated. R. H. Whitehead (*N. Y. Med. Jour.*, August 18, 1900) has reported the changes which he has observed in the cranial nerve nuclei after poisonous doses of gelsemium. Acute poisoning of a two-months-old rabbit resulted in what he calls "initial chromatolysis." The Nissl bodies are abnormally large and rather indistinct. The achromatic spaces are smaller and often faintly stained, and since the chromatic bodies are not deeply colored the cell-body has the appearance of a spongy fibroid mass with but little achromatic substance. In cases of slow poisoning the Nissl bodies are few in number, of large size, and situated principally around the nucleus. They also seem to be much fragmented in some cells. He believes that toxic doses of gelsemium produce chromatolysis of the cells which constitute the nuclei of the motor cerebral nerves, and that the alterations are not specific, but are very similar to the changes produced by other toxic substances on the motor cells.

Extrabuccal Feeding.—Feeding by the mouth may be avoided either by (1) rectal feeding by means of nutrient enemata; (2) feeding through the cutaneous surface by subcutaneous or intravenous injections, or (3) feeding after gastrotomy. Although none of these methods are capable of supporting life indefinitely, and none can answer the demands of the metabolism of a normal body, yet they are very beneficial in maintaining for a time the nutritive balance of a weakened condition. C. A. Ewald (*Med. Rec.*, August 18, 1900) has written a very suggestive article on this subject. Since the large intestine is almost entirely devoid of peptonizing power and possesses very slight amylolytic power, it has

been suggested and was for many years considered rational to use only predigested foods, such as peptones, albumose preparations and pancreatic meat enemata. Investigations have shown, however, that when very considerable amounts of nitrogenous substances are administered by rectum ninety to ninety-five per cent. are absorbed. The specially prepared substances usually irritate the intestine and it becomes necessary to revert to the native egg albumin and milk. In regard to carbohydrates it has been found that considerable quantities of grape sugar may be absorbed from the intestine, but the solution must not be too concentrated nor be injected in too large quantity. Cane sugar is perhaps not so absorbable, but is believed to be less irritating. Very little sugar is broken down into lactic and acetic acids, for absorption takes place so rapidly that decomposition is usually impossible. Fats are very poorly absorbed, but if the fat be mixed with pancreatic gland-substance ninety per cent. even may be taken up. The following combination is considered the best by Ewald: Two tablespoonfuls of wheat flour are stirred into 150 cc. of lukewarm water or milk and to this mass one or two eggs with a pinch of salt are added, and the whole is beaten up with 50 to 100 cc. of a fifteen-per-cent. glucose solution. The addition of a small amount of claret acts as an analeptic. Such an enema corresponds to about 450 calories of which, to be sure, only a portion fulfil their physiological destiny. The nutritive value may be changed to suit the individual case and peptones or other predigested foods may be added, but the more complicated the composition of the enema, the more difficult it is to prepare and the more irritative it usually becomes. Experiments upon animals have shown that subcutaneous injections of oils and fats will furnish nutriment to the organism and that body fat can be manufactured from these. The author has several times injected from 80 to 100 cc. of sterile oil into the subcutaneous tissues in the course of half an hour. This method occasions great pain, however, can seldom be used in private practice more than once or twice, and is very liable to cause abscess formations, necrosis, or fat embolism. Feeding through gastric fistulæ is very valuable in cases of stricture of the esophagus, especially when benign, and in these cases can often be maintained for months or years. When malignant disease is present, the conditions are usually so unfavorable that protracted feeding cannot satisfactorily be accomplished. He concludes that extrabuccal feeding does not completely replace feeding by the mouth, and, in most cases in which this method is exclusively resorted to a state of malnutrition sets in from the beginning. When the metabolism is below normal it may be possible by nutrient enemata to cause an accumulation of nitrogenous substance and fat. The best results are obtained when only a temporary replacement of the natural feeding by mouth is desired. The enemata are much preferred to the subcutaneous injection of oil.

Migrated Ovarian and Parovarian Tumors.—G. M. Edebohl's (*Med. Rec.*, August 18, 1900) contributes 4 new cases of these conditions, as follows: Case I., gangrenous monocyst, presenting all the characteristics of a migrated parovarian cyst, removed from the omentum by operation; cure. Case II., large strangulated left parovarian cystoma free in the abdominal cavity, its pedicle having just been completely severed by torsion; left ovarian ligament and left Fallopian tube pulled completely out of the cornu of the uterus; coexistence of umbilical hernia; parovariotomy and radical herniotomy; cure. Case III., self-amputation of a left ovary and tube; intraligamentous right ovarian cystoma; chronic metritis and appendicitis; celio-oophorosappingo-hysterectomy; inversion of the appendix; cure. Case IV., migrated dermoid of the right ovary; left ovarian cystoma; bilateral ovariectomy; amputation of the omentum; inversion of the appendix; cure. The author tabulates from literature 43 other pertinent cases summarized: Free ovaries, 3 (1 right, 2 left); parovarian cysts, 3 (1 left, 2 side not stated); ovarian cysts, 21 (12 left, 3 right, 6 side not stated); ovarian dermoids, 15 (9 left, 5 right, 1 not stated); 1 left cystosarcoma of the ovary.

Posterior Colpoceliotomy.—Speaking from the standpoint of the general surgeon C. G. Cumston (*Med. Rec.*, August 18, 1900) regards this method as the best for all cases except the following: Acute pelvic peritonitis, cystic purulent salpingitis adherent to the vaginal wall (except for evacuation and drainage), old extensive bilateral lesions with much dense adhesion (except for total vaginal hysterectomy). Except for encysted salpingitis the abdominal route is the best when intestinal adhesions are present. It is difficult to diagnosticate these, but disturbances in defecation and digestion, intestinal dyspepsia, colic, chronic intestinal occlusion, gas felt when a certain part of the tumor is palpated may be regarded as fair indices.

Chronic Proliferating Osteomyelitis.—B. Kozlovsky (*Revue de Chirurgie*, June, 1900) gives the history of several cases, of which the following is typical. A man, aged forty-three years, entered the hospital complaining of intense pain and swelling of the femur; examination revealed the presence of a cylindrical, fusiform, hard, resistant, non-fluctuating tumor of the femur; no antecedent syphilis or other complaint; the diagnosis of sarcoma was made, but the patient refusing operation, a cure was effected by mercurial treatment and by baths. This case, with others cited, is similar to those described by Kocher, as a form of suppurative osteitis, which is vascular and proliferating, having a chronic tendency, the granulations presenting something of the appearance of a sarcoma. This proliferating or fibrous osteomyelitis is a rare disease, which is often confounded with syphilis, tuberculosis or malignant neoplasm.

Urotropin in Cystitis.—From an extensive series of investigations B. Goldberg (*Centralbl. f. innere Medizin*, July 14, 1900) reports as follows: Urotropin is sometimes inefficient, in spite of large doses given for long periods and its effects are not dependent on the kind of bacteria, as with the same kind of infection the results were favorable in some and unfavorable in others. Its value depends more on whether (1) the cystitis, as a primary bacterial invasion, develops in a healthy urinary tract, in which condition the author had 40 per cent. cured, and 60 per cent. improved, or (2) whether it associates itself with a preexisting disease of the tract, as stricture, hypertrophied prostate, tumor, paresis, nephrolithiasis, tuberculosis, gonorrhea, etc. In these cases urotropin alone is useless, yet combined with local treatment, while there is little hope of cure, there may be much alleviation of the symptoms (in 49 cases, 4 cured and 30 improved). If (3) the cystitis is secondary to an infection of the urine, urotropin, like santal and salol, is utterly useless (10 cases, 10 failures).

Chloretone.—F. F. Ward (*Medicine*, August, 1900) recommends this drug as the best general hypnotic, more certain than trional and sulfolal and less harmful. The only after-effect observed was a slight headache after taking the drug for several nights. He also uses its combined sedative and local anesthetic effects in excessive hyperacidity of nervous origin, in epigastric pain which interrupts sleep, and in acute alcoholism. In the latter case it should be given in ten-grain doses in half an ounce of whiskey or brandy, followed in fifteen minutes by a raw egg beaten in milk. Ordinarily the dose is three to five grains in powder, capsule, or in whiskey, repeated if necessary. It is soluble in 100 parts of water and quickly so in twelve parts of alcohol. In whooping-cough, a child of four years took two and a half grains in half a dram of brandy, with relief of the paroxysm and quiet sleep.

Some Experiences with the Schleich Mixture.—P. Ilvin (*Klin. therap. Woch.*, July 29, 1900) has employed the Schleich solutions in 135 cases and is well satisfied with the results. All disagreeable symptoms of ether narcosis, such as salivation and bronchitis, were but rarely noticed and as long as respiration was active sudden death, which is liable to occur after chloroform administration, seemed to be impossible. Depending upon the age, from 0.98 to 2.70 cubic centimeters of the mixture were found necessary per minute to keep the patients under. Excitation was noticed in 25 cases, nausea in 19, convulsive movements in 3, trismus in 2, and temporary cessation of respiration in 2, one of which was an extremely weak child suffering from post-scarlatinal osteomyelitis. Respiration becomes more frequent and deep and is most rapid when complete narcosis has set in unless dyspnea is present when an increased rate is not observed. There seems to be a close association between the de-

gree to which the patient is anesthetized and the number of respirations, for when the patient is allowed to come out the normal rate gradually returns. The pulse is full and not rapid; as consciousness returns, it becomes more frequent and weak. The author believes that, owing to the physical properties of the mixture, one can regulate the amount within perfectly safe limits by carefully and constantly watching the respiration and circulation.

Antigonorrheal Injections.—L. Casper (*Semaine Médicale*, July 18, 1900) uses sulphate of zinc as the adjuvant and corrigent through its astringent and antiphlogistic qualities of silver nitrate and permanganate of potash. These salts are the very best antiseptics for combating the gonococcus, with the disadvantage of exciting some irritation and increased secretion. His method of proceeding is as follows: As soon as the acute symptoms appear injections of silver nitrate solution, 0.10 per cent., alternating with sulphate of zinc solution, 1 per cent., are given at least six times in twenty-four hours. The silver is gradually increased to 0.25 per cent. and the zinc to 4 per cent. After the discharge grows less the silver is withdrawn and permanganate of potash solution, 1:10,000 or 1:8000, is still alternated with the zinc. This method, together with the hygiene usually recommended, relieves in four to five weeks, as is proved not only by absence of discharge but also by disappearance of shreds from the urine. In chronic urethritis cure is accomplished by injecting silver nitrate instillations, 1 to 2 per cent., every two days, alternating with copious urethral irrigations of potassium-permanganate solution slowly increased from 0.20 to 1 per cent. Meanwhile the patient uses daily injections of sulphate of zinc, 2 per cent.

Obstetrical Anesthesia by Cocaine.—E. Bumm and his assistant, O. Kreis (*Semaine Médicale*, July 18, 1900), have been using cocaine injections into the lumbar spinal canal in obstetrics after the method of Bier, devised for and hitherto limited to general surgical procedures. They report six cases, of whom five were primiparae. In these patients, after the os had fully dilated, they injected into the subarachnoid space 0.01 centigram of chlorhydrate of cocaine, following the technic recently set forth by Tuffier. After five or ten minutes there appeared entire anesthesia of the lower part of the body from the costal border, analgesia, depression of tactile sense, continuation of the normal rhythm and intensity of the uterine contractions absolutely without pain and only with a sense of tension in the abdomen, and, finally, absence of any need of "pushing" or "bearing down," although voluntary movements were in no wise suspended. Further all pain from the pressure of the head in the vagina was absent. In two cases there was normal termination of labor; in two forceps were used and one was a breech case, and in one suture

of lacerations was done, all with no distress whatever. The after-treatment was in no way complicated. The drug caused no bad symptoms, save a little cephalalgia, vertigo and nausea in one patient. It seems too early to draw definite conclusions, but the field of usefulness of cocaine seems to be widening.

The Diagnosis of Phrenic Hernia.—Almost all cases of this condition are determined only at the autopsy table, says C. Hirsch (*Münch. med. Woch.*, July 17, 1900). The following detailed physical signs were shown by his patient who was admitted with the diagnosis of pneumothorax: Medium size, poor nutrition, feeble muscular system, thick fat deposit, no dyspnea, slight subjective oppression and tension in the left side. The thorax showed normal breadth, slight flattening in the upper part, left side slightly more bulging than the right, ribs distinguishable, respiration delayed on the left but not decreased; in front on the right side and on the left side only as far as the fourth rib, sonorous note with high-pitched resonance becoming more and more tympanitic downward; no possible sharp demarcation between the lung and the stomach; no cardiac dulness on the left side; toward the axilla, more and more tympany but no changes in the respiratory tone; behind, on the right, the lung limit descends to the tenth or eleventh dorsal spine; on the left as far as the angle of the scapula more and more sonorous tone with tympany later, below this level feebler tone; no distinction possible between stomach and lung outline; vocal fremitus on the right, normal; on the left, behind in the axilla and in front below the fourth rib, much decreased; auscultation normal on the right side; on the left, vesicular sharpened murmur over the resonant portion above, below, over the tympanitic, ringing-tone area enfeebled and occasionally metallic respiration and ringing sounds, not synchronous with the respiratory act and closely resembling the noises heard over the normal intestines and stomach; no succussion perceptible; apex beat and cardiac dulness to the right of the sternum; normal heart; liver, spleen, nervous system and extremities normal; double hernia. A diagnosis of phrenic hernia was suggested and established by the radiograph, especially by means of a rubber tube filled with quicksilver and pushed down into the stomach, where, folded upon itself, it occupied the tympanitic zone in the left chest. The autopsy still further demonstrated a hernia of the stomach and part of the duodenum into the left chest with displacement of the heart to the right.

Retinitis Albuminuria.—This disease of the eye occurs chiefly in the chronic form of kidney disease, but also may occur during the albuminuria of pregnancy, after diphtheria, scarlet fever, and sometimes after measles. The retinitis usually appears when renal symptoms have been fully declared, but it may be the first symptom

noticed. Uremic symptoms may, or may not, have been present. The local changes vary greatly in severity, and sometimes amblyopia is present without any visible fundus changes. J. J. Mills (*Maryland Med. Jour.*, August, 1900) says that he has found changes in the macula region more often than in the optic nerve, although sometimes the nerve is affected and the retina scarcely at all. It is unusual to find one eye only involved, although frequently one eye is more affected than the other. The author reports three cases which he considers to be of unusual interest. Case I., a boy of nineteen years, was suffering from severe headaches. Two years previously vision in the left eye had become defective. Complained of no other symptoms. Examination of the fundus of left eye showed a large white patch of degeneration in the macula region. No other changes observed. Right fundus normal. Examination of his urine showed a large amount of albumin, and he died five months later. This case is interesting because (1) only one retina was affected, which is most rare; (2) the eyes first called attention to the kidneys; (3) the youth of the patient. Case II., student, aged twenty-seven years, called on the writer for glasses. One year previous had had headaches, but none recently. There was an insufficiency of the right external rectus. Patient cannot always maintain binocular fixation and has diplopia when fatigued. The right fundus also was normal except for a very small hemorrhage, and a smaller white patch, just above the nerve head. Examination of his urine showed albumin in abundance. Patient has since broken down in health. The interesting points in this case are the fact that the asthenopic symptoms led to the ophthalmoscopic examination, and this to the discovery of kidney trouble. Case III., female, aged seventy-six years, had a sudden attack of vertigo followed immediately by diplopia, which had lasted two weeks when seen by the author. There was a paralysis of the right external rectus, with marked convergent strabismus. Because of the diplopia she could not walk alone. Micturition was very frequent. Some shortness of breath was present. No other symptoms except the diplopia and failing vision of right eye, for which she asked relief. Examination of right fundus showed a typical fatty degeneration of the fibers of Muller, producing a stellate appearance in the macula region, and a rather unusual row of interrupted hemorrhages on the right. The left fundus was normal. Urinary examination showed albumin. The interesting points of this case are the paralysis of the sixth nerve, and the fact that the strabismus and defective vision led to the discovery of the kidney disease. Mills illustrates his findings in these three cases by sketches of the diseased fundi.

Pancreatitis.—W. M. Robson (*Lancet*, July 28, 1900) calls attention to pancreatitis, the essential cause of which is bacterial infection.

Acute pancreatitis takes the form of acute peritonitis beginning in the epigastric region with severe paroxysmal pain, tenderness, distention, vomiting, constipation, and slight icterus. The temperature is very variable, the pulse is rapid and small. Death usually occurs in two to five days from collapse. The subacute form may begin suddenly with vomiting, pain and constipation which in a few days give place to diarrhea with very fetid stools, sometimes containing blood and pus. Collapse is not so marked; temperature is more irregular; the local signs develop more slowly; there is well-marked pancreatic tenderness, and under an anesthetic the pancreas is often felt to be swollen; albuminuria is pretty constant, but glycosuria and lipuria are rare. There is constant, dull epigastric pain with acute exacerbations. The more urgent symptoms may disappear, but emaciation continues, and relapses usually occur until death supervenes. With abscess formation there is a tender swelling behind the stomach, and the pus may burrow into the gastrointestinal tract, the peritoneum, or may follow any of the various fascial planes. Death is the usual termination. Chronic pancreatitis, at first hypertrophic, later cirrhotic, is more common than the acute or subacute forms, and often resembles malignant disease of the head of the pancreas. It usually arises by extension from gastroduodenal catarrh and is often associated with biliary or pancreatic calculi. The onset may be gradual and painless, or with severe pain, nausea and vomiting, followed by jaundice. The pain is not over the gall-bladder, but is in the median line. Tenderness is in the median line a little above the umbilicus. Paroxysmal pain may be repeated at intervals, or there may be steady, deep, dull pain. Jaundice tends to deepen after it once appears. Loss of flesh and strength are constant symptoms, with anorexia, flatulence and a sense of epigastric fulness after eating. Often there is fetid diarrhea with fatty stools. Albuminuria is common. In the later stages with jaundice hemorrhages from mucous membranes and petechiæ in the skin are common. Temperature is very variable. Death results from asthenia. When the bile-duct is obstructed by the cicatricial process the gall-bladder becomes distended but is free from tenderness. Adhesions with neighboring viscera are usually well marked. Surgery offers the only hopeful line of treatment. In acute cases the diagnosis is usually not clear, and most of them result in acute epigastric peritonitis. The treatment of acute and subacute cases consists in drainage, preferably through the posterior body wall. Chronic pancreatitis is best treated by cholecystostomy, or cholecystenterostomy, which, by relieving tension, leads to a subsidence of the pancreatitis, then to an opening of the common duct, and so to a cure. Since this disease closely resembles malignant pancreatic disease, and is greatly benefited by operation, one should not refuse operation even when the diagnosis of malignancy seems assured.

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SATURDAY, AUGUST 25, 1900.

THE THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.

WE are glad that we have been able to furnish our readers with a prompt account of the proceedings of the Paris Congress. The 420 Americans who are registered as members show how lively an interest the medical profession of this country is taking in the last International Medical Congress of the century. As a rule the proceedings of very large medical associations are apt to prove unsatisfactory from the standpoint of expected advances in medicine. Often the commonplace is the subject of discussion and the absentee may feel that he has not missed much after all. As a matter of fact, it is not because of the discussion of the new and unknown that large medical congresses are of benefit to the profession. Their work is rather to facilitate and encourage contact of minds and men and ideas. The influence of men and their ideas upon one another on occasions like this is often unconscious, but is not the less valuable. No one can calculate the amount of practical good which has resulted for this reason from the twelve international medical Congresses that have preceded this one.

This year's Congress has far surpassed its predecessors in every respect; in the number of attendants, in the enthusiasm of the reception, the cordiality of all concerned, the number of special reports on difficult questions, and, finally, in the number of papers presented, which exceeds 1200 in all. Each triennial meeting proves more cumbersome than its predecessors in its almost infinite detail, yet who shall say that the international meetings shall ever outlive their usefulness? They always serve to bring together the widely separated members of a profession whose single object must be accomplished by practically the same means all over the world. We do not hesitate to predict that the international medical congress, as a triennial feature of current medical history, will surely not be allowed to lapse in this generation.

The special reports submitted to the Medical Section on ulceration of the stomach, on mucomembranous colitis, on the pathogeny of gout, on pulmonary edema, and on kidney insufficiency not only reflect very completely the texture of current thought on these important subjects, but are also suggestive of the trend of medical theory on the part of those who are investigating them experimentally. In the Surgical Section the reports are at least of as great interest. The present-day surgery of the liver and pancreas, the question of the treatment of fractures of the vertebrae, the discussion of the radical cure of hernia, the injection of cocaine into the spinal cord, and the surgery of the spleen, were all treated as great living topics.

In the Medical Section it was a most curious feature to find that many of the prominent specialists on stomach diseases now suggest consultation with a surgeon when gastric symptoms prove obstinate to treatment. Gastroenterostomy is suggested as a simple procedure, almost without danger and practically sure to relieve the symptoms of intractable ulcer of the stomach, of benignant pyloric stenosis, or of contractions of the stomach due to old ulcers.

In the Surgical Section and in the Sections on Gynecology, Neurology, Dermatology and Children's Diseases, American medical men were listened to with an attention that shows that the impress of American medicine is making itself felt. Dr. Jacobi's address at the second general session of the Congress was the *pièce de résistance* of all of the general sessions, and was received with an enthusiastic attention that quite gratified American hearers gathered within the

classic walls of the Sorbonne. Dr. Jacobi's prophecy that the time is rapidly approaching when American medical science will lead the world seems to have sent the first gleams of its realization in his own much-applauded address.

DIABETES IN AMERICA.

UNTIL recently, statistics apparently showed that diabetes mellitus was much rarer in this country than in Europe. Of late years, however, the number of diabetic cases, especially in American cities, has constantly increased to a very marked degree. Old practitioners have inclined to the opinion that this increase of reported cases is due to a genuine increase of the disease. They consider that the stress of the struggle for life and success in these latter days, combined with the better living of our generation, brings on oftener than in years gone by the disturbances of the nervous system which so often underlie diabetes.

At the last meeting of the American Medical Association two communications were of special interest in this regard. Dr. Herrick of Chicago expressed himself as confident that many cases of diabetes remain absolutely unrecognized because of faulty diagnostic technic. Dr. Heinrich Stern of New York presented the fact that during the last ten years, while the general death-rate of New York has decreased about one-third, the mortality from diabetes has more than doubled. The increased fatality from the disease has not come especially among the wealthier classes, but has affected about equally all strata of the population. There is not the slightest reason for thinking that this remarkable increase in the reported cases of diabetes is due to an actual increase in the number of cases of the disease. Needless to say no change has come in the habits of life of New Yorkers within ten years that might account for the greater incidence of a pathological glycosuria. The approximation of the death-rate from the disease to that which occurs from the affection in European cities is only an index of greater skill in diagnosis and of greater care in the examination of patients.

Diabetes is often overlooked even in advanced cases. Two diseases particularly are set down as causing deaths which are primarily due to diabetes; one is pulmonary tuberculosis, the other Bright's disease. The presence of sugar in the blood of patients suffering from diabetes makes their tissues very favorable culture media for the growth of the tubercle bacillus. When sugar is added to blood serum in a test-tube tubercle

bacilli grow much more rapidly and more luxuriantly than on simple serum. Diabetic patients are extremely prone to tuberculosis. To permit sufferers from the disease to remain where they are liable to contact with tuberculosis patients is to invite a tubercular infection. By far the greater number of diabetics die of tuberculosis in some form. Here is where the source of diagnostic error lies. The physical signs in the lungs seem an all-sufficient cause for all the patient's symptoms. The urine is not examined; the glycosuria is never detected. Needless to say the ordinary dietetic treatment of tuberculosis serves only to make the diabetes worse and a fatal termination becomes inevitable. These constitute many of the cases that are considered to be *phthisis florida*, or the so-called consumption without tendency to recovery.

As to Bright's disease and diabetes the confusion comes from the finding of casts and albumin in the urine. In advanced stages of diabetes these will always be found. If sugar is not looked for, and it often is not, especially when the specific gravity of the urine is not high, as is not infrequent, then the true indications for treatment will be overlooked entirely. Both these possible sources of error in diagnosis emphasize the necessity for more frequent and careful examinations of the urine than are made at present. Undoubtedly our present statistics of diabetes in America show less than the real death-rate from the disease, because diabetes frequently masquerades to a fatal termination under the unsuspecting semblance, as we have said, of tuberculosis or Bright's disease.

UNREASONING FEAR AND ITS PHYSICAL BASIS.

EMOTIONALISM has its foundation not in any perversion or defect of the moral nature, but in the physical constitution. This is a fact that has gained recognition only during recent years. The various phobias, unreasoning fears, are now an accepted part of the symptomatology of certain nervous and mental diseases. The man who hesitates before daring to cross an open square is not the victim of a cowardly timidity, but is suffering from a nervous condition which causes his visual reflexes, when acted on only by distant objects, to disturb not only his mental but his physical equilibrium; tremor and a halting gait assert themselves. The mechanism of co-ordination in walking is a delicate one, but in the normal individual practice has banished effort in

its accomplishment. In highly neurotic organisms, however, when nervous reflexes have become exaggerated because inhibition is lowered by constitutional weakness, the faculty to co-ordinate may require an extremely difficult and conscious effort. This intense effort reacts upon the nervous system somewhat as the walking on a narrow path at a great height does on one unused to it, with a resultant fear that disturbs mental and physical balance.

In the fear of wide, open places, agoraphobia, "dread of the market place" as it has been learnedly called, we have an exaggerated condition of unreasoning fear, examples of which in less degree are familiar in life. The realizations of the physical basis of these emotions, their treatment by the improvement of the patient's general condition and the reassurance of patient and friends that they are the result of physical rather than mental defects are often of the greatest benefit. Not only this but properly directed training may result in ameliorating very much the physical condition that accompanies and is often directly causative of these mental states. For example, an unreasoning fear of darkness is a very common failing. Much of it is due to the fact that children are put to bed with a light burning and go to sleep before it is put out. They have never become accustomed to the reflexes that are aroused by persisting darkness. The question of training in this matter is important. Not a little nervous perturbation is saved in after-life by accustoming children when they retire even in very early years to total darkness. Besides this in times of accident involving darkness, as is so often the case, those accustomed to absence of light are not handicapped by a paralyzing nervous fear that makes rational action and presence of mind practically impossible.

Another very familiar form of unreasoning fear is seen frequently at the present season of the year. It is the dread of lightning so common among neurotic individuals. For very nervous women, particularly, a severe thunderstorm is a most trying experience. The physical depression consequent on the nervous excitement is often distinctly noticeable even hours afterward. For neurotic patients improving in their general condition, a storm often means an unfortunate setback in the progress of amelioration. Here the physical basis of the unreasoning fear is not hard to see. It cannot be modified by reasoning nor even by the assurance of the minimum of danger to life that lightning involves. Train-

ing in mental control will, however, do much to ameliorate the nervous dread aroused by the sight of lightning and the sound of thunder. If practised at first when electric disturbances are distant and slight it will finally bring patients to a comparative ease of mind. To point out that the condition really has a physical basis in lack of nervous tone is of itself a very helpful factor in lessening the irrational dread.

In a word, the unreasoning fears that disturb many a life may be greatly lessened by constitutional treatment that benefits their general condition and by therapeutic methods directed to the special physical basis of the symptoms. It is the duty of the physician quite as much to remove the lesser evils that interfere with the fullness of healthy life as to treat the serious ills that threaten existence. How much the physical condition influences even the passing modifications of the mental state it has been reserved for our generation to realize.

ECHOES AND NEWS.

NEW YORK.

Hydrophobia Victims.—The death of Mrs. Strathie at Atlantic Highlands, N. J., August 19th, from hydrophobia resulting from a slight scratch inflicted by the teeth of a pet bull-terrier, recalls the fact that her son died from the same cause about a month previously. Pasteur treatment was administered to the mother, but without avail. Seven other persons bitten by the same dog are being anxiously watched.

Advance in Price of Milk.—The long continuance of the hot weather, drying up pastures and increasing the cost of feeding cows, has led the milk producers to insist upon an increase of the price paid them from two and three-quarters to three cents a quart. The Consolidated Milk Exchange has granted the demands of the dairy-men and farmers, increasing by a quarter of a cent the price paid to the producers for milk, and this amount has been added to the wholesale price in this city, which is now \$1.60 a can (forty quarts) instead of \$1.50. In consequence it is expected that the minimum retail price will be increased from five to six cents a quart. This increase, although seemingly slight, is of vast importance to the denizens of the tenement-house districts where the future voters reside.

The Kneipp Cure.—A man with feet swollen twice their normal size was recently brought to Bellevue in a cab for treatment. He said he had read much of the merits of the Kneipp cure, and thought he would try it on his corns and bunions. He rose at daylight every morning for two weeks and roamed barefoot through the woods

near his home. He said he had about cured his corns, but one day his feet began to swell and he tried various remedies without obtaining relief. The doctors found that the man had a bad case of ivy-poisoning. He will be laid up for several days.

New York's Lodging Houses.—The rigid enforcement of sanitary rules by the Board of Health has robbed these places of their terrors as breeding-places of disease. Chief Inspector Jonas of Chicago has recently made a careful inspection of these institutions with the result that the system of regulations in vogue here will doubtless be adopted in Chicago.

The New Régime at Elmira.—Risking the chance of being shot down in their flight for liberty, three first-grade men, all "trusties," who would soon have had their parole, took French leave from the New York State Reformatory August 17th. The men were working on the large lawn in front of the institution. A guard was with them. He had allowed the men to get some little distance away, when suddenly they began to run for the woods. All three escaped, and searching parties are now seeking for them.

Dr. Booth Killed.—Dr. Franklin Booth, one of the inspectors employed in the Health Department and who was detailed to duty in the Borough of Queens, had both legs cut off by a trolley car August 18th. In getting off a car he was struck by a trolley coming in the opposite direction, was knocked down and the car wheels passed over his legs. With great presence of mind he asked that he should be carried to the sidewalk and an ambulance summoned. In the meantime he directed the application of cords as tourniquets to his legs to prevent hemorrhage, and upon the arrival of the ambulance surgeon suggested that it would be well to amputate the left leg, which was done on the sidewalk. Upon arriving at the hospital further surgical procedures were required upon the right leg. Dr. Booth seemed to rally from the shock, but his sixty-three years were against him and he gradually sank and died. At the time of his death Dr. Booth was a member of the Queens County Medical Society; he was graduated from Bellevue in 1864.

Contagious Diseases.—For the week ending August 18, 1900: Measles, 51 cases and 6 deaths; diphtheria, 172 cases and 33 deaths; laryngeal diphtheria (croup), 3 cases; scarlet fever, 47 cases and 2 deaths; smallpox, 1 case; chicken-pox, 5 cases; tuberculosis, 181 cases and 154 deaths; typhoid fever, 50 cases and 12 deaths; cerebrospinal meningitis, 6 deaths; totals, 510 cases and 213 deaths.

Disposal of Garbage.—The Street Cleaning Department has not solved the problem of disposing of the city refuse. By putting a stop to the dumping of garbage in the ocean off Rockaway Beach the Commissioner won the gratitude of

the frequenters of the seaside resorts, but he fell into a hornet's nest when he established a dumping-ground at East Fifty-third Street. After the process had continued for three or four days the residents of the neighborhood were righteously wrathful and appealed to the Board of Health to have the proceeding stopped, denouncing it as a menace to the public health. The Board responded promptly and not only ordered the continuance of the dumping stopped, but peremptorily demanded that the refuse already deposited should be removed. These orders were promptly executed, the refuse being dumped into scows, the destination of which remains a mystery. Until cremation plants can be established the Street Cleaning Department seems to be literally between the devil and the deep sea.

PHILADELPHIA.

Action Against Milkmen.—The Board of Health has authorized criminal proceedings against a milkdealer for selling milk containing a preservative. Action is also to be taken against an alleged seller of watered milk.

Park Sanatorium.—The management of one of the newspapers of the city has secured permission of the Park authorities to establish a sanatorium in one of the old mansions in Fairmount Park. It is intended to be a home for anemic young girls during the summer months.

Pennsylvania Hospital.—The 149th annual report shows that 35,195 patients were treated during the last year. There were 1401 ambulance calls answered and 1676 patrol cases cared for. The income exceeded the expenditures by \$99,055.35.

Milk and Ice Society.—This Society furnished during the past week 2700 quarts of sterilized milk and 60 tons of ice. Milk is sold at 5 cents a quart and ice at the rate of 4 pounds for one cent. The poor people benefited are not made to feel that they are objects of charity.

Health Report.—Deaths in the city for the week ending August 18th were 550, an increase of 98 as compared with those of last week and of 169 over the corresponding week of last year. There were 42 deaths from cholera infantum and 51 from sunstroke. There were 31 deaths of people over eighty years of age. Contagious diseases: Diphtheria, 64 cases, 10 deaths; scarlet fever, 22 cases, 1 death; typhoid fever, 77 cases, 8 deaths.

CHICAGO.

Births.—During the week 611 births were reported, 319 males and 292 females.

Contagious Diseases.—In the contagious disease division, 16 cases of scarlet fever and 15 of diphtheria were reported.

Meat.—At the stockyards 26,170 pounds of meat were condemned during the past week.

Milk.—Specimens of milk numbering 112 were brought to the Laboratory, 5.92 per cent. of which were found to be below grade.

Mortality Statistics.—The mortality for the week ended August 11th, as given by the weekly Bulletin of Health, was 577, or 93 more than the preceding week, and 87 more than the corresponding week of 1899. The annual death-rate per thousand was 17.18. Of the 577 deaths 309 were of males and 268 of females; 190 were under one year, 85 were between one and five, and 94 over sixty years. The principal causes of death were: Acute intestinal diseases, 172; consumption, 56; nervous diseases, 47; heart diseases, 29; cancer, 24; violence, 22; Bright's disease, 18; pneumonia, 18; sunstroke, 14; suicide, 9; typhoid fever, 9; apoplexy, 8.

GENERAL.

The Famine in India.—August 20th, the Viceroy, Lord Curzon, telegraphed that the heavy, general rainfall has continued in most of the affected tracts. The crops promise well in the central provinces, sowing is active and the necessity for free kitchens will shortly disappear. Prices, however, are still very high everywhere. Cholera is prevalent throughout Hyderabad and in Bombay. There are 5,688,000 people receiving relief.

St. Louis' New City Hospital.—The City Council and House of Delegates have passed the bill which makes \$300,000 available for this purpose. The Mayor has given the bill his sanction, so the work will begin at once on the site of the old hospital which was destroyed by the cyclone of 1897. A one-million-dollar hospital building is contemplated, with furnishings and appliances fully in keeping with modern medical, surgical and hygienic conditions. As the institution will be built upon the pavilion plan, a fairly large structure can be erected with the funds at hand, and additions may be made from time to time, as the necessity arises and as the appropriation permits.

Cottonseed Oil Preferred to Olive.—The United States Consul at Marseilles reports that pure olive oil for edible purposes is at present practically unknown in any important market, and if it were offered for sale it is doubtful whether it would be accepted by the public, except as an inferior article, as the average consumer at the present time prefers the neutralized taste of a mixture of the olive and vegetable oils, and would mistake the fruity flavor of the pure juice of the olive for an adulterated product. It is doubtful if olive oil will ever recover its old-time place, as many vegetable oils, notably American cottonseed oil, are being produced in increased quantities from year to year and are gaining in the estimation of the public.

Obituary.—Sir William Stokes, Surgeon in Ordinary to the Queen in Ireland and Consulting Surgeon to the British Forces in South

Africa, died August 10th. Sir William Stokes was born in Dublin on March 10, 1839. He was the second son of William Stokes, M.D., Regius Professor of Medicine in the University of Dublin and Physician in Ordinary to the Queen in Ireland. Sir William was educated at the University of Dublin. He was President of the Pathological Society in 1881, President of the Royal College of Surgeons in 1887, and Honorary President of the International Medical Congresses at Berlin in 1890, Rome in 1894, Moscow, 1897, and Paris, 1900. He was the author of several publications, one of them being the "Life and Work of William Stokes." He also sent numerous contributions to medical journals.

—Sir Henry Simpson, Veterinary Surgeon to the Queen and former President of the Royal College of Veterinary Surgeons, was found August 17th drowned at Datchet, Buckinghamshire, where he owned an extensive estate. He was born in 1842. Sir Henry Lunn Simpson was Mayor of Windsor in 1887, the jubilee year of Queen Victoria's accession to the throne, and received a knighthood for his official services in the royal borough during that year.

Revitalising Vitiated Air.—Two French chemists, MM. Desgrez and Balthazard, announce that they have discovered a process of indefinitely renewing the vital properties of air. Bin oxide or peroxide of sodium is used and the discoverers assert that in the process of decomposition, presumably at normal temperatures, it gives off oxygen and at the same time absorbs the carbonic acid produced by human breath and the burning of gas.

The Bubonic Plague.—Three new cases of the disease were reported as occurring at Rio de Janeiro August 16th, and three deaths. The record of the plague at Manila for the two weeks ending July 7th, as reported August 20th to the Marine Hospital Service, is seven new cases and five deaths. Of the new cases, four were Filipinos and three Chinese. Six to eight deaths is the present daily record at Bombay. At Calcutta there is a marked and steady diminution in the number of cases reported and in the mortality. Aden on July 10th was officially declared free from plague.

Yellow Fever.—Tampa was officially declared free from yellow fever August 11th and all quarantine restrictions on travel to and from that port were removed. Since then the neighboring States have raised all quarantine against Tampa. At Vera Cruz during the week ending August 4th 19 cases and 6 deaths were reported. In Yucatan the fever is reported as "on the increase" and very virulent. At the ports of Colombia all steamships are leaving with clean bills of health. At Havana during the week ending August 6th there were 7 deaths from the fever.

Sickness at Nome.—The situation is greatly improved. August 6th Lieut. Jarvis, of the Revenue Cutter Service, reported that there were no

cases of typhoid fever, 12 cases of measles, 18 cases of pneumonia and 6 cases of smallpox.

Enteric Fever in the British Army.—Mr. Wyndham announces that there were at Bloemfontein for the week ending June 8th 487 admissions and 98 deaths from enteric fever. For the week ending June 15th 213 admissions and 64 deaths, and for the week ending June 22d 221 admissions and 52 deaths. At Kroonstadt there were for the week ending May 25th 6 admissions; for the week ending June 1st 83 admissions and 12 deaths; for the week ending June 8th 18 admissions and 18 deaths; and for the week ending June 15th 66 admissions and 11 deaths.

Meager Food and Health.—Ex-Judge William Cole Talcot, of Valparaiso, Ind., has lived for several years with his wife at a total expense for food of not more than \$1 a week, or \$52 for the year. Both are in the best of health. They declare that they never felt better nor could work better in their lives and believe that they have solved the problem of happiness and health in resorting to the plainest of plain living. Their meals consist chiefly of cereal products, with milk and sugar. They eat generally for breakfast oatmeal mush, with milk and sugar. For dinner they have bread and milk and sugar, and for supper cornmeal mush and sugar. They vary this slightly from time to time with other cereal foods, and when they feel a taste for it add a bit of meat, for neither is a strict vegetarian. The weekly expense bill for the two is as follows: Fourteen pounds of flour, graham and white, 56 cents; eight pounds of corn and oatmeal, 10 cents; four pounds of sugar, 28 cents; total, \$94 cents. Salt and an occasional piece of meat brings this weekly average nearly to \$1.

Poppy Cultivation in India.—The Secretary of State for India reports that the area of poppy cultivation in India has increased between the years 1890 and 1897, as stated by the Bengal opium department, from 770,000 bighas to 890,000 bighas (a bigha averages about three-quarters of an acre). In 1898 the area was considerably below that of 1897. The Secretary of State further states that the cultivators are perfectly free to sow food or other crops, and that he is unwilling to interfere with the rules and regulations of the system, which has worked well and which gives full weight to the importance of controlling the traffic in opium and keeping it within bounds.

Tetanus in Jute.—The Chief Inspector of Factories of Great Britain reports that during the ten years of 1890-1899, inclusive, 11 fatal cases of tetanus occurred at Dundee, 5 of which occurred in workers in jute-mills and 3 were the children of workers in the yarn-mills. The last victim was a female worker in the jute-mill who six days after a crushed and lacerated wound of the foot developed tetanus and died within

twenty-four hours. Some of the dust taken from under the machine in which the foot was crushed was found to contain an unusually large number of tetanus bacilli. The *British Medical Journal* remarks that this circumstance rather suggests that between jute and tetanus there exists a similar relation to that between wool-sorting and anthrax. The source of the jute used is India.

CORRESPONDENCE.

OUR LONDON LETTER.

[From Our Special Correspondent.]

LONDON, August 10, 1900.

THE SOUTH AFRICAN HOSPITAL COMMISSION—IN-ADEQUATE RESERVE HOSPITAL EQUIPMENT—EFFETE PREJUDICES OF THE MILITARY AUTHORITIES IN DEALING WITH THE MEDICAL DEPARTMENT—WANT OF INDEPENDENT TRANSPORT—CENTENARY OF THE COLLEGE OF SURGEONS—HISTORY OF THE COLLEGE—EXHIBITION OF RELICS—QUARREL BETWEEN THE BOARD AND STAFF OF THE NATIONAL HOSPITAL FOR THE PARALYZED AND EPILEPTIC.

THE Commission appointed by the Government to inquire into the South African Hospital Management began its work in London under the presidency of Judge Romer. It consists of five members—two medical and three lay. Under pressure in the House of Commons Mr. Balfour was forced to increase the number of lay members from one to three, so that the medical profession, which was thought to be incriminated, should not have a preponderating voice. In opening the Commission the President said that no special or compulsory powers had been conferred, but they hoped and believed that such were unnecessary. All Government officials were freed from their obligation of keeping secret information obtained in their official capacity. There might be witnesses, official or otherwise, who might be deterred by personal reasons from giving evidence for fear of the consequences. The Commissioners had determined that by taking their evidence in strict privacy and by not allowing their names to appear they should receive the benefit of such evidence. They believed that they would be able to obtain all the evidence necessary to enable them to report on their commission, but if they found themselves hampered in obtaining evidence which they believed was being withheld they would report the matter to the Prime Minister and apply for his assistance. General Sir H. Brackenbury, Director-General of Ordnance, stated that he was charged with supplying all arms and armaments for the war together with hospital equipment. He could not say that there had not been occasional delay in complying with requisitions wired from the front, but such were due to dependence for the execution of contracts or orders on different trades, which were

not equal to the emergency. The reserve of hospital equipment, previous to the war was totally inadequate. A great lesson had been learned—the necessity of a very large reserve, so as to be able to meet all the demands during the first six months of a campaign and not to be dependent on the trades. Just previous to the war there was only one base hospital of 520 beds and two stationary hospitals of 110 beds each. As showing how his department was tested he mentioned that about a month ago a demand was received from the front for 5000 beds, and while the order was being complied with a telegram was received to send out no more. The next witness, Sir Ralph Knox, Permanent Under-Secretary for War, gave a startling piece of evidence which throws a strong side light on the whole scandal and illustrates the effete caste prejudices and belated conservatism which dominate that citadel of British torism, the War Office. The Army Medical Department has no executive authority. According to what is required in the field, it has to go to one of the four high military officers of the War Office, the Adjutant-General, Quartermaster-General, Inspector-General of Fortifications, or the Director-General of Ordnance, and while speaking generally all its applications are granted they are usually referred to the Army Board! This illustrates the persistent snubbing of the Medical Department which permeates the administration of the War Office. Another example of this noxious policy is found in the question of transport. Mr. Watson Cheyne, one of the consulting civil surgeons in the campaign, pointed out that many defects in the Army Medical Service in the field depend on one great point, namely, that the Army Medical Department is not provided with its own independent transport. Application must be made for wagons and animals in all cases when any movement is to take place. The result is that frequently such transport is not available, or, if available, can only be supplied to a limited extent. The field hospital which did the greatest amount of good was the New South Wales Ambulance which came provided with its own transport and formed a unit absolutely independent of the Army. It appears that the Army Medical Department has for sometime been making representations to the military authorities on the necessity of independent transport, with the usual result.

The centenary of the Royal College of Surgeons was signalized by the presentation of diplomas of honorary Fellowship in the theater of the University of London. The President, Sir William MacCormac, delivered an address of welcome in which he said: One hundred years have passed since the charter granted by King George III. incorporated the surgeons of England into a Royal College whereby the art of surgery might be better cultivated. The progress of surgery has been greater during the present century, more specially in the latter part of it, than in all the preceding ones. All new discoveries are but

a product of the past. Absolute originality does not exist. The discovery of anesthesia was guided by previous trials, half successes, half failures. The antiseptic system, for which all the world does homage to Lord Lister, and which crowns him with imperishable laurels, is based on the researches of Pasteur. In the old textbooks again and again something may be found near to what is the accepted doctrine of the present time. Hippocrates classified injuries of the skull much in the same way as we do now. A close connection has existed between the surgeons and the City of London. The City first recognized the difference between barbers and surgeons in the fifteenth century. In 1423 a college of physicians and surgeons, which had been founded chiefly through the influence of John Morstede, a surgeon who accompanied Henry V. to Agincourt, was formally sanctioned by the Lord Mayor and powers were granted to it to examine and control persons practising medicine and surgery. The Livery Company of Barber Surgeons was founded in 1540 and its hall in Monkswell Street is still standing. The Act of Parliament separating the surgeons from the barbers became law in 1745, and a corporation was established. The surgeons established themselves in the Old Bailey where they built a theater and dissected the bodies of criminals after execution. In 1753 Percivall Pott and John Hunter were chosen as the first masters in anatomy, and no more brilliant choice could have been made. In 1796 the surgeons emigrated to Lincoln's Inn Fields. A large number of interesting portraits and relics were on view at the College—a pencil drawing of John Hunter by Sir N. D. Holland, said to be even a better likeness than Reynold's painting; surgical instruments belonging to Hunter, his clock case of lancets, etc.; a silver box used by Jenner in vaccination, etc.

The difficulties which have existed for the last ten years in the management of the National Hospital for the Paralyzed and Epileptic, owing to the refusal to allow the medical staff representation on the Board, have reached a climax. Matters have arrived at such a point that no reconciliation could be hoped for between the views of the present board and the staff. This brilliant staff, composed almost entirely of men of world-wide fame, such as Hughlings Jackson, Buzzard, Gowers, Ferrier, Bastian, and Risien Russell, who have done much in the creation of the science of neurology, has been compelled to address a protest to the *Times* asking for a full and searching inquiry into the constitution and management of the hospital. Some two months ago the staff addressed a memorial to the governors declaring that the administration of the hospital was very unsatisfactory. The diet is insufficient, the care and treatment of patients are defective, the nursing is inadequate. The grounds given for refusing the staff a voice in the management of the hospital are that such a course would be an encroachment calculated to destroy the religious

and philanthropic character of the hospitals and to subordinate to purely professional objects institutions maintained by the benevolent for benevolent purposes. Here is another example of the evils of allowing the control of a hospital to rest purely in lay hands. The narrow-minded view that a conflict between religion and science is involved in the very reasonable and really philanthropic demand of the staff calls for no comment.

SOCIETY PROCEEDINGS.

THIRTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

Held at Paris, August 2-9, 1900.

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SECOND GENERAL SESSION.

THE second general session was held in the amphitheater of the Sorbonne on Monday, August 6th, with the President of the Congress, M. Lannelongue, in the Chair.

The first paper read was that of Prof. Pavlov of the Imperial Institute of Experimental Sciences of St. Petersburg. He said: The best illustration of what experimental medicine has done for medicine is the history of the study of the vagus nerve. Section of the vagi produces death and this was at first attributed to nervous influences upon the heart. Later it was found that if the vagi were cut at different times animals could be kept alive for some time even with both vagi completely sectioned. Then it was found that death seemed to take place because of paralysis of the larynx and the consequent passage of food into the lungs. Prof. Pavlov showed that the larynx and lungs could be protected from such accidents yet death take place. The cause of death was always an acute indigestion due to the trophic influence on the stomach of the section of both nerves. Dogs can be kept alive for months, however, by feeding them absolutely bland and unirritating food through a gastric fistula. The study of this subject shows what can be accomplished by persistent experimentation.

Not only in the matter of gastric but especially in intestinal digestion has experiment done much to widen the horizon of physiology. The changes that take place in food and in drugs before their ultimate absorption are becoming clearer. We have learned that the problems involved in digestion are by no means so simple as we all thought them, but the light is becoming ever clearer and we know now that they are surely not insoluble. Besides this experiment has taught us much as to the use of new drugs. It can be objected that we may never be sure that drugs will act on man as on animals, but the wider study of biology is leading us to know where to look for exceptions. Precious hints are being gained by experimenta-

tion, however, and our armamentarium for the treatment of human diseases is being constantly added to. It is to be hoped that the new century will see a still wider extension of the practice of experimental therapeutics in the hands of accurate and competent observers.

Problems in Modern Medicine.—Prof. Burdon Sanderson then discussed the problems that are at present occupying medical minds, especially in pathology and physiology. He reviewed the development of cellular pathology and paid a tribute to Virchow and experimental medicine with a warm eulogium of his old master, Claude Bernard. After Virchow's ground-breaking work the most important discovery for pathology and physiology was his pupil Recklinghausen's observation that the white blood-cell was not a mere disk of living material afloat in the blood-stream, but a living organism consisting of but a single cell but containing a nucleus and enjoying at least a quasi independent existence. Then came the discovery of Cohnheim, another pupil of Virchow, that the white blood-cells become in pathologic conditions the pus cells. Since then purely biologic ideas have entered more and more into physiology. When it became clear that fermentation was due to living cells, the analogy of this process with many things that occur in the living body made it probable that its explanation would throw light on physiological problems.

The original claim that fermentation is actually due to the vital processes within the cell has gradually been proved to be unfounded. Chemistry is again asserting her sway in physiology. Buchner has recently shown that a substance can be expressed from the cells of ferments which will produce fermentation without the necessity for the presence of the living cells. Many oxidation processes within the body are probably accomplished in the same way as fermentation and are therefore the result of a secretion of living cells and not of the actual vital processes within the cells.

Respiration and Oxidation.—Recently the experimental botanists have been able to reproduce all the phenomena of plant respiration *in vitro*. These processes then revert to the chemist once more for explanation. Oxidation processes are, however, often inexplicable. Even the process by which hydroquinone accomplishes oxidation is not yet fully understood. The study of respiration has not added much to our knowledge of the red blood-cells, yet some advance has been made. We know that the red cells of one animal will not live in the blood of another. Recently we have learned that the power in the blood serum which causes the death of the red cells is the same that acts upon microbes, which it must be remembered are also cellular in character. The power that gives immunity to disease serves also to kill any intruding cells that may find their way into the circulation. In such questions as diabetes the advance may not seem marked, yet there has been a constant progress. We have learned to

realize now that there are three organic elements that enter into the problem of diabetes, *viz.*, the liver, the pancreas, and the muscles. The liver is concerned very probably with the production of sugar and somewhat with its consumption; the pancreas produces some substance that aids in the metabolism of sugar within the organism; and the muscles are the direct agents of the ultimate destruction of sugar.

Kühne the Physiologist.—After Claude Bernard himself, Burdon Sanderson declared the modern medical world owes much to Kühne, his disciple, for light on these difficult problems of cellular physiology. We have lost him within the last few months, but his memory shall live in the eminently suggestive discoveries he has made.

American Medicine.—Prof. Abraham Jacobi then reviewed the course of American medicine from the time when John Smith had to go home to England because there were no doctors in the Colony, down to the present day. He dwelt on the features of our medical education that made it so difficult to have thoroughly-trained medical men, and on the early defects in our laws that discouraged the regular members of the profession and encouraged quackery. He stated that at the time of the American Revolution only one book on medicine had been printed in America and two English books reprinted. Nearly 8000 medical books have been published in America up to the present time and over 300 medical books are issuing from the press every year. Laws have been passed in most of the States for the regulation of medical practice and medical matters are progressing very favorably. Medical education has received a new stimulus in recent years. As the result of the establishment of Johns Hopkins Medical School there has come the realization that medical schools should not only teach but also investigate. Where original research is not constantly carried on medical teaching degenerates and soon becomes out of date.

Medical Abuses.—Dr. Jacobi dwelt on the medical abuses that are such crying evils. The manufacturing chemist and his nostrums, the advertising specialist, the quack and faith-healer, the book-agent who takes valuable time, the drug-agent, who will be heard, and the rest. All of this was said in lighter vein and in a charmingly naive French that quite took with the audience. The abuses he mentioned were evidently not those of America alone, for they were appreciated by our foreign brethren who applauded at various points. When, then, at the end he spoke of the possibilities there are in American medicine and the chances that before the new century is old she will take her place as a teacher of medicine among the nations, an enthusiastic round of applause was evoked and in its midst the session closed.

Prof. Bacelli's paper on "The Treatment of Tetanus by Injections of Carbolic Acid" was not read. Political events require the Professor-Senator's presence in Italy.

THIRD GENERAL SESSION.

The third general session was held Thursday, August 9th, with the President of the Congress, M. Lannelongue, in the Chair.

The Architecture of the Bones.—Prof. Albert of Vienna read a paper on "The Architecture of the Bones of Man and of Animals." He recalled certain well-known facts as to the mechanical arrangement of the bony frame so that it accomplishes intended purposes with the least waste of energy consonant with the conditions under which it works. He dwelt especially on the comparison of the human form in its lifting labors with a crane. He then proceeded to show how, in the construction of such parts of the frame as the ankle, the principle of the arch is used to give strength yet economizes tissue and permits of flexibility. In the long bones of the leg the amount of material necessary to carry the intended load is arranged in such a way as to give grace and lightness yet the proper amount of security.

It was then announced that the next International Congress would be held in 1903 in Madrid. On account of the summer heat, there had already been some discussion as to the advisability of holding the Congress in the spring instead of during the summer, as has been the custom. The ultimate decision of this matter must rest with the Spanish Committee of Arrangements.

The President of the next Congress, selected by the votes of the Spanish representatives now in Paris, is Prof. Julian Calleja Sanchez, Dean of the University of Madrid, Professor of Medicine, President of the Bureau of Health of Madrid, and Senator of the Kingdom of Spain. He has appointed as his Secretary General Prof. Fernandez Caro, of Madrid, who is also a member of the Spanish upper house.

The prize of Moscow, as we announced to our readers, was then conferred on Santiago Ramon y Cajal, Professor of Histology at the University of Madrid.

M. Lannelongue then thanked visitors for their attendance at the Congress and the French Committee for their work in its preparation. Of this the burden fell on the Secretary General and it had been most devotedly carried. Each International Congress becomes more and more laborious for the committee of organization, but the good accomplished in the profession's glorious cause, not in bringing out what is new, but in bringing men and ideas into contact, is ample reward for it all. M. Lannelongue then said, not adieu, but au revoir at Madrid.

SECTION ON INTERNAL MEDICINE.

FIRST DAY—AUGUST 3D.

(Continued from page 275.)

The Treatment of Membranous Colitis.—Dr. Mathieu of Paris said that whether or not the disease was essentially and primarily a neurosis at least it was clear that a neurotic element en-

tered into it and this furnished the principal indication for the treatment of the disease. The nervous condition becomes gradually worse from the continuance of the irritative condition forming the vicious circle so common in neurotic processes. Patients often become distinctly neurasthenic and the general treatment for that condition will have to be resorted to. Even the rest cure, with absolute rest in bed, isolation and an absolute milk diet, may be required. Later the nervous-system symptoms should be treated. The constipation may be overcome by large injections of water, not given cold or at high pressure. Either of these qualities in the injection may increase the irritability and the pain. For the pain belladonna may be given and often affords relief. Codein or morphine may be given, but guardedly. At times, instead of increasing the constipation, they serve to loosen the bowels by relaxing the spasm. For paroxysms of severe pain large injections of warm water and warm baths may be given. In two cases known to Dr. Mathieu an artificial anus was made to relieve the pain. Both patients died. There seemed to be a spasmodic condition of the gut, above the point where the intestinal opening was made.

Membranous Colitis and Appendicitis.—Prof. Dieulafoy said that the differential diagnosis of these two was often very difficult. It was sometimes said that the existence of a chronic appendicitis or of a typhlitis was sometimes the cause of the irritative nervous reflexes that resulted in membranous colitis. Membranous colitis was said to lead to the eventual involvement of the appendix. The coexistence of the two diseases is very rare. Of 500 cases of appendicitis that have been operated on by surgeons at Dieulafoy's request only one had any history of membranous colitis. The two diseases have no connection with each other.

SECOND DAY—AUGUST 4TH.

Acute Edema of the Lungs.—Dr. Teissier of Lyons said that the subject of pulmonary edema was one of the most difficult and the most disputed in the whole range of modern medicine, not alone from the pathological but also from the clinical side of the questions it involves. A patient in apparently good health may be stricken with sudden acute pulmonary edema and despite every medical effort be dead in a few hours. Three theories have been advanced to explain its origin. First, what may be called the mechanical theory, according to which the edema of the lungs occurs as a result of cardiac insufficiency, the left heart being unable to remove from the lungs the blood sent there by the right heart, causing a congestion with serous exudation. The second theory makes pulmonary edema due to an interference with the vasomotor mechanism of the lung, a paralysis of the blood-vessels in full dilatation. This congestive condition produces the characteristic edema. The third theory is that a toxin present in the circulation causes the edema.

It does so either by acting on the walls of the blood-vessels and so making them more permeable for the blood-serum, or interferes with the action of the heart by acting on its ganglia or directly on the muscle fibers, or, finally, by causing some change in the blood itself. As a matter of fact it is not to any of these factors that edema of the lungs is due, but to all three of them. Mere interference with the circulation throughout the rest of the body by which the balance between the left and right would be disturbed does not cause pulmonary edema. If the aorta be pressed upon in animals, even although the pressure is continued for long intervals, pulmonary edema does not occur. If the nervous mechanism of the heart is interfered with by irritation of the cardiac plexuses edema of the lungs will begin as soon as pressure is placed upon the aorta, but it does not invariably occur and is not very marked. If, however, salicylate of methyl be injected into the circulation at the same time that the nerves of the heart are irritated and the aorta pressed upon, then pulmonary edema of a fulminant type will assert itself. The injection of methyl salicylate alone will sometimes occasion edema, although usually not to any marked degree. To produce in animals pulmonary edema as it is seen clinically, there must be interference with the systemic circulation, nervous disturbance of the heart, and the presence of toxic material in the circulation. All these elements are realized in the cases of pulmonary edema that come to autopsy. A certain amount of aortitis is found sometimes very marked in character and this interferes with the elasticity of the aorta and consequently with the systemic circulation. This aortitis, because of the thickening it causes in the walls of the artery at the base of the heart, produces pressure upon the cardiac ganglia at the base of the heart. There are in the circulation the poisons due to renal insufficiency and they supply the toxic element necessary for the production of pulmonary edema. In parenchymatous epithelial nephritis, in which there is as a rule but little renal insufficiency, pulmonary edema occurs very seldom. It must be remembered that it is not because the edema fills up the vesicles of the lungs and so lessens the air space in them that the patient becomes asphyxiated. It has been shown by the insertion of a tube in the trachea of an animal suffering from pulmonary edema that the lung capacity was not increased but decreased. Asphyxia occurs because the lungs lose their resiliency as a result of the presence of the fluid in them and so the air is not circulated in them.

Pulmonary Edema Always Congestive.—Prof. Huchard of Paris said that the name pulmonary edema was not well chosen; at least, it does not completely express the real condition present. Congestion always exists in connection with the edema and plays a large rôle in making the lungs incapable of accomplishing their normal function. Very often when the chest is filled with the fine râles that indicate the presence of the exuded

fluid the percussion note over the chest is perfectly normal. This paradoxical percussion serves of itself to show that it is not merely the mechanical effect of the presence of the fluid that causes the symptoms. Asphyxia does not occur because of water-logging, so to speak, but because the lungs have become rigid and pulmonary ventilation has thus been interfered with. Serous expectoration, although relied upon as a pathognomonic symptom, sometimes fails to make its appearance. In Prof. Huchard's experience aortitis always exists and by its interference with the systemic circulation is an important etiological element in the production of the pulmonary edema.

Danger of the Iodides.—In cases in which threatening symptoms of edema of the lungs occur, all use of the iodides must be carefully avoided thereafter. The tendency to exudation in the air-passages which these drugs occasion is almost sure to make them dangerous remedies for patients with any liability to the occurrence of pulmonary edema.

Toxins Most Important Cause.—Prof. Dieulafoy of Paris said that in his experience the etiological element which is common to all cases of pulmonary edema is nephritis. It occurs in any form of nephritis and often in cases in which there has been no suspicion of the existence of a kidney lesion. It is not unusual to be summoned to a patient suffering from the asphyxia of pulmonary edema at whose bedside will be found the liter or half liter of foamy, serous expectoration so characteristic of the disease. The most careful inquiry may fail to reveal a single preliminary symptom. The patient was about his usual occupation the day before and felt not a whit difference from what he has felt for months before. He went to bed a few hours before the attack feeling quite in his usual health. In these cases bleeding is the best remedy. This of itself shows that the toxic element is of greatest importance, for while the bleeding relieves the circulation its enduring effect is due to the fact that it dilutes the toxins which owing to the renal insufficiency are present. The aortic lesions dwelt on by Teissier and Huchard are often found in cases of pulmonary edema, but their presence is by no means indispensable for the occurrence of the affection. Any one who has seen the autopsies of many cases of edema of the lungs will have seen some cases without any aortic affection.

Grippal Herpes.—Dr. Vidal of Hyeres, France, said that the cause of herpes in infectious diseases is as yet a mystery. In a certain number of cases the specific micro-organism of the disease has been found in the herpetic lesions. This was especially true in regard to grip. It seems probable that such lesions desiccate and that in this way grip germs get into the air. Such lesions are therefore a source of the infectiousness of the disease. It is especially accompanying grippal herpes that pneumonia occurs as a complication and grip pneumonias are spread by this means.

Where patients develop herpes the lesions should be protected from desiccation and distribution into the atmosphere by frequent applications of ointments.

The Liver in Anemia.—Dr. Gilbert read the account of some observations on the livers of animals who had been bled freely and frequently before being put to death. In all of them the changes that were noted in the liver were more marked than in any other tissues. Islets of swollen cells were noted frequently. The single cells of these groups were swollen and transparent—the so-called hyaline degeneration. The form of the nucleus and its characteristic staining qualities were retained so that it is doubtful if the cells were actually killed, but they were evidently rendered very illly able to perform their normal functions. It is evident then that the liver is an important organ in anemias and that disturbances of its functions should be anticipated.

Malarial Hemoglobinuria.—Dr. Karamitsas of Athens, Greece, discussed the malarial origin of the so-called malarial hemoglobinuria. Prof. Koch of Berlin called into question the connection between this condition and malaria and attributed attacks of the so-called black-water fever of Central Africa to the abuse of quinine. Dr. Karamitsas takes the stand that while quinine may cause hemoglobinuria in susceptible individuals, it is not the cause of the hemoglobinuria that occurs in connection with malaria in tropical countries. The best proof of this is that it occurs only in countries where tropical malaria is prevalent. Koch says that he has seen hemoglobinuria with malarial parasites in the blood, but he has also seen it occur without malarial parasites being present. Karamitsas has never seen it occur without being able to find malarial parasites, although sometimes it has been necessary to look for them rather carefully. A peculiarity of malarial hemoglobinuria is that even in countries where it occurs quite commonly it will be noted in certain epidemics of the disease and not in others. This has frequently been the subject of remark in Athens. The characteristic malarial hemoglobinuric fever is an intermittent tertian, although it does not necessarily take this form. Hemoglobinuria which occurs from quinine is noted about two hours after the administration of the drug. It is never due to cumulation of the quinine in the system, nor to its use for days before the attack. For malarial hemoglobinuria quinine should be employed, otherwise the patient is liable to succumb. It is the one remedy that is of service.

The Liver as the Origin of Urea.—Dr. Friedel Pick of Prague described a case of intermittent bilious fever, in which there were certain observations that seemed to indicate the liver as the source of urea. On the days when the fever existed the amount of urea excreted was only five to six grams; on other days from twenty-five to thirty grams were excreted. Charcot in his book on diseases of the liver advanced this theory of the hepatic origin of urea because of a case of Reg-

nard's in which in the same way the excretion of urea varied with the occurrence of the liver affection. There seems no other good reason to account for the diminution of the urea except this one of the reflex action on the liver.

Treatment of Pneumonia.—Dr. Villard of Marseilles counseled the use of bleeding, injection of normal salt solution, and the use of cold packs in pneumonia. Even in children a certain amount of blood should be abstracted by leeches. In the old the amount of blood taken must depend on the condition and vitality of the patient. In sthenic adults as much as 500 cc. of blood (15 ounces) should be taken. This should be replaced by an equivalent amount of normal salt solution. The abstraction of blood serves to dilute the toxins of the disease. In cases in which dyspnea has been marked or nervous symptoms prominent, the good effect of the venesection will be very noticeable. The weakening effect of the loss of blood is counteracted by the injection of the normal salt solution. The use of the cold pack serves to keep down the temperature, decreases the pain and restlessness, lessens the sense of oppression in the chest, and seems to make respiration easier.

Technic of the Hematokrit.—Dr. Daland of Philadelphia described certain modifications in the use of the hematokrit which made the employment of the instrument more accurate, without requiring any special skill in its use. In the new instrument the blood is made to revolve about 10,000 times a minute. This centrifugation must be kept up for three minutes. Less time than this does not give accurate results, but it is needless to take more time as the separation is complete in three minutes. The hematokritic examination of the blood can be accomplished at the bedside and is best done there.

Repeated Blood Examinations.—Prof. Widal of Paris said that where a number of examinations of the blood have to be made, as in dispensary work, the hematokrit is a useful instrument. It is not as accurate as other methods of ascertaining the number of red cells, but it takes much less time and it gives approximately correct results. Especially where frequent examinations of the same person's blood are to be made, the instrument gives excellent comparative results.

Spleen in Infections.—Prof. Doninici of Naples said that some claimed that chlorosis was due to an infection of the spleen. In order to test this question he had injected the spleens of young bitches with cultures of various microorganisms. In none of the cases did any systemic symptoms occur. The spleen seems perfectly capable of protecting itself against infectious material. Dr. Vidal said that experiments of this kind on one species of animal could not be made to apply to another. He has injected typhoid bacilli into the spleens of rabbits without results and into the spleens of guinea-pigs with typical general symptoms.

Bacteriology of Rheumatism.—Dr. Triboulet of

Paris reviewed the recent work on the bacteriology of acute articular rheumatism. So many different microbes have been found in the lesions of rheumatism that he concludes that in all of the cases there was question of the germ causing some complication of rheumatism and not the rheumatism itself. This opinion is confirmed by the fact that many of the germs found are ordinary pus cocci, yet other good observers who examined carefully the joint-fluid of rheumatism failed to find them. While acute articular rheumatism is very probably an infectious disease, none of the germs yet described are concerned in its etiology. Rheumatism seems to give to the organism it attacks a special tendency that makes it liable to various infectious complications. It is these that observers have been studying in their successful bacteriological results. It is to be remembered, moreover, that morphology counts for very little in bacteriology. Microorganisms may grow in pairs, yet be very different from other diplococci in their virulence; or in chains, yet be unlike ordinary streptococci. We have in acute rheumatism, as we know it, a number of clinical entities which must be distinguished from one another before we can proceed with any assurance to study their causes.

Rheumatism an Infection.—Prof. Widal of Paris said that there is now absolutely no room to doubt the infectious nature of rheumatism. Its germ has not, however, as yet been discovered. If the liquid taken from acute rheumatic joints be studied microscopically it will be found that all of the cellular elements in the synovial fluid are polynuclear leucocytes. Now these are the cells that, as is well known, always occur in large numbers at the point of inoculation of infectious material. They are phagocytes, according to Metschnikoff. This proves rheumatism to be an infection, but the most careful study of the fluid and cells fails to show the presence of microbes. Inoculated on all the ordinary media in six cases it failed to give any growths.

Rheumatism Contagious.—Dr. Bouchard of Paris said that rheumatism is a house disease; that it occurs in successive cases in the same house. He knows a village where rheumatism had not occurred for years and where after the importation of a case five other cases developed. At the Trocadero some years ago workmen were engaged in repairs. One day it was noticed that a red fungus covered the walls of the cellar where they were working. Some days later a number of the workmen fell sick with rheumatism. Not long afterward some buildings were being torn down in a suburb of Paris and a similar red fungus was noted on the old walls. Here, too, the workmen suffered from rheumatism and a number of typical cases of the disease developed. On a number of occasions rheumatism has been reported as spreading epidemically in barracks where soldiers were crowded together. This was especially the case where the quarters were damp. Rheumatism is evidently an infec-

tious disease and perhaps its cause is a fungus or mould.

THIRD DAY—AUGUST 5TH.

Causes of Gout.—Dr. Le Gendre of Paris said that there are many explanations offered for gout. The deposits of urate of soda in the tissues are thought by some to be due to a lack of vascularization of certain parts of the body and the precipitation from the slow blood-current in these parts of substances left in the circulation because of defective excretion by the kidneys. Other writers attribute all the phenomena of gout to nervous influences. Others have advanced the opinion that it is only when uric acid and its salts had undergone certain modifications that it becomes capable of producing gouty pathologic changes and that certain other analogous compounds as, for instance, the alloxuric bodies, could also produce the same effects. All of these theories are, however, open to decided objections on the part of chemists and physiologists and, besides, they fail to explain the periodical occurrence of the attacks and also why the disease is hereditary. Its hereditary character is the most prominent feature of the disease. Besides this its relations with the arthritic diathesis and with such constitutional conditions as diabetes and obesity particularly require explanation.

Gout and Diabetes.—The relation between these two diseases has been established. Diabetes it is generally conceded is the failure on the part of the organism to destroy saccharine material supplied to it. It seems clear, then, that gout is a failure to use the nitrogenous material supplied, that is, a failure to consume albumin. This gives rise to a superabundance of certain salts and acids, oxalic, acetic, lactic, etc. These diminish the solubility of the urates and lead to their deposition. There is also a clinical relation between gout and simple albuminuria and interstitial nephritis. Gout is brought on by some abuse of alimentation or of alcohol that affects every cell in the body, hence the deterioration of the systemic metabolism. Certain of the more delicate tissues, as the kidneys, are more deeply affected than others. The heredity of gout is the transmission to the descendants of the state of the cells of the parent.

The Pathogeny of Gout.—Sir Dyce Duckworth said: (1) That gout as a morbid condition depends on an inherent vice of nutrition, which is manifested by an imperfect metabolism in various organs or parts of the body, presumably in the kidneys, and probably in the liver. (2) That this trophic disorder or inadequacy leads to the formation of uric acid, probably in excess, and to the periodic retention of it in the blood. (3) That histology throws no light upon the intimate nature of this defect which thus relates to cellular potentiality, possibly under neurotrophic influence, and not, so far as we know, to structural alteration. (4) That this textural disability, or

a tendency to it, may be primarily acquired, and also transmitted as a fault, thereby inducing from time to time urichemia with gouty manifestations in the descendants. (5) That in most instances, under conditions which provoke it, and in some cases independently of these, attacks of gout may grow up and come to a crisis. Such crises are attended by an alteration in the solubility of the uratic salt in the blood, whereby irritating crystals of bi-urate of sodium are produced, and precipitated in various parts of the body. (6) That a paroxysm of gout, the sites of its occurrence, and its metastases, are determined by nervous influences, probably dominated from a center in the medulla, and that the local attacks alight either in the joints or in tissues which have been weakened or rendered vulnerable by impaired nutrition, owing to past injury or overuse. (7) That this central neurosis is an essential and transmissible feature in the pathogeny of gout, and pertains to the arthritic diathesis generally. (8) That the urichemia of gout is peculiar and unlike that which is induced by other morbid conditions, but that the occurrence of urichemia in the gouty is by itself inadequate to induce attacks of gout. (9) That uratic deposits in any part of the body may be removed in course of time, but are apt to be permanent in the least vascular tissues. (10) That uratic deposits may occur to an enormous extent in gouty persons without the occurrence of any pain or paroxysm. (11) That the clinical features of gout indicate that both *hemic* changes (due to inherent morbid tissue metabolism) and a *neurotrophic disturbance* act as pathogenic factors, and that, consequently, gout is to be regarded as a neurohumoral malady. The neurotic basis of gout is much more important than has been thought. It forms the main element that enters into the heredity of the disease.

Gout Not a Single Entity.—Prof. Teissier of Lyons said that gout as we know it is not a single disease but a number of them, having certain analogies. In some of them it is the urates of the system that are at fault; in others the oxalates; in still others the lactates. The mystery of the pathogeny of the disease is a chemical problem and it remains for the physiological chemists to solve it. Meantime the clinicians can help to the ultimate solution of the question by learning to differentiate accurately the various forms of the disease.

Gout Not a Chemic Problem.—Dr. His of Leipzig said that gout is not a chemic but a biologic problem. We know now that the white blood-cells are capable of destroying and modifying the urates. The nucleinic acid that occurs in the leucocytes is the chemical compound by which these modifications are worked out. In the guinea-pig the white cells are capable of destroying, that is, of modifying, from three to four grams of uric acid in the day. The therapeutics of gout should consist, then, not in an attempt to dissolve the uric acid by adding solvents to the

blood, but the white blood-cells should be stimulated to take up their normal function of modifying the uric acid and urates that occur in the system.

Gout a Physical Problem.—Dr. Brocciardo of Naples said that there is probably a physical element in gout as well as a chemical one. Crystals in solutions according to a well-known physical law gather always around a nucleus. The urates of soda that occur in deposits in the joints found there a nucleus already formed. This comes very probably from the hereditary element in the disease.

Rheumatic Gout.—Dr. Thomas Hammond of Washington said that rheumatic gout is not a neurosis as is often claimed, but is a digestive disturbance. Its immediate cause is an abnormal acetic fermentation. It can be cured, absolutely cured, by a lean meat diet. Fats, starches, and sugars lead to the acetic fermentation; they must be absolutely avoided.

FOURTH DAY—AUGUST 6TH.

Renal Insufficiency.—About the middle of the century the only method of diagnosing kidney insufficiency was that of clinical observation of the symptoms of beginning uremia, the occurrence of dropsy, the *bruit de galop* of the heart, and the finding of albumin and casts in the urine. These symptoms sufficed for that earlier stage of medical practice and thanks to the careful observation of the great clinicians enabled them to study kidney diseases very thoroughly. The method was crude, however, and scarcely told more than the actual existence of kidney trouble. It did not tell how much the kidney function was disturbed nor what work might still be expected of it. In recent years the attempt has been made to decide how much the kidney function has suffered.

Recent Methods.—The estimation of the toxicity of the urine, it was hoped, would give important information. The method of injecting into animals, however, in order to decide this has been found to have so many modifying circumstances that its accuracy must be doubted. More recently still cryoscopy of the urine has received attention. This process consists in finding the point at which the urine freezes and so deciding as to the presence or absence of certain organic constituents of the urine that markedly affect its freezing-point. The permeability of the kidneys has been studied by means of methylene blue. In the healthy kidney within half an hour to two hours after its ingestion the methylene blue appears in the urine. In kidneys affected by interstitial nephritis the blue color does not appear often for twenty-four hours. In the healthy all of the drug will be eliminated by the third day at least. In those with sclerotic kidneys the elimination continues for two days longer. Phloridzin has been used in this same way. Its injection produces sugar in the urine and the amount

of sugar excreted represents the permeability of the kidneys.

Treatment of Nephritis.—Dr. Laache of Christiana said that we have advanced very little in the treatment of nephritis. We have learned to have more confidence in Nature, however, and our prognosis is not as hopeless as it was. We have found that the cyclical albuminuria of the developmental period may disappear completely with the full development of the organism. We know, too, that, especially in the young, one kidney may hypertrophy so as to compensate for another, and we look with more confidence for a certain natural repair of kidney lesions. All of us have seen under the microscope new-formed kidney tissue that made clear the natural powers of reparation. We have learned in recent years that hydrotherapy, especially because of its encouragement of skin function, is one of the most effective and most promising therapeutic agents that we have. The lesson that must be learned in chronic kidney disease is that the heart must be supported. It is when the circulation begins to flag under the strain of granular kidneys that symptoms of renal intoxication show themselves.

Diagnosis of Separate Kidneys.—Dr. Richter of Berlin said that he had found the method of finding the freezing-point of the urine a very valuable diagnostic method, but still incapable of solving all the questions that come for diagnosis. Recently with Dr. Casper of Berlin he has used the method of phloridzin injections in conjunction with ureteral catheterization. By this means it has been found that a healthy kidney excretes sugar, while an unhealthy kidney does not.

Mysteries of Urinary Secretion.—Widal of Paris said that methylene blue passes in acute nephritis, but is retarded in interstitial nephritis. At times, as in a recent case of syphilitic kidney, although the methylene blue passes easily, symptoms of uremia assert themselves. Other substances may not get through the kidney and so intoxications occur.

Ureine the Toxin of the Urine.—The Secretary read a paper by Dr. Wm. Moore of New York in which he described a recent substance that he has found in the urine. It is obtained by a complicated process of which treatment with alcohol is one of the important steps. The new substance called ureine is of a fatty nature and leaves a spot resembling a grease-spot on filter paper. It is slightly alkaline, almost neutral in reaction. When burned only pure carbon remains. This seems to be the substance which produces the symptoms of uremia when renal inadequacy permits of its accumulation in the system. Injected into the animals this substance produces gradually-increasing coma and finally death in the midst of convulsions which resemble those of uremia.

Nephrotherapy for Nephritis.—Dr. Tarruela of Barcelona described his experience with eight cases of nephritis treated by the administration of renal substance. Four of the cases were interstitial nephritis and were but very little benefited

as far as objective symptoms could be observed, although they claimed to feel better subjectively. One was a case of hematuric nephritis and seemed to be greatly improved. Three were cases of parenchymatous nephritis and they were distinctly benefited. The amount of urine and of urates secreted at once rose and the albumin was diminished. The dropsy was lessened and the work of the heart was accomplished better than before. Tarruela inclines to the opinion that there is some therapeutic good to be expected from renal opotherapy in cases in which the epithelial structures, the secretory substance, alone is affected.

Addison's Disease.—Dr. Emil Sergent and Leon Bernard claim that Addison's disease and suprarenal insufficiency are not interchangeable terms. There are forms of Addison's disease evidently due to the lack of suprarenal secretion in the system yet that never became the typically fatal cases described by Addison. There is also the bronze disease described by Addison, of which black skin is an essential symptom and which is associated with inadequacy of the suprarenal capsules. Suprarenal insufficiency may declare itself in the midst of any acute infectious disease and seems to be due to an invasion of the suprarenals by the infectious material. It may be best compared to an acute hepatitis. Its symptoms are those that are noted in animals after the complete removal of the suprarenals. General weakness and weakness of the pulse came on and many of the unexplained fatal terminations of acute infections are due to this cause.

SECTION ON SURGERY.

FIRST DAY—AUGUST 3D.

(Continued from page 275.)

Anesthesia by Injection of Cocaine Into the Vertebral Canal.—This new method of anesthesia has already been practised a number of times and, although its adherents generally claim that it is free from serious dangers, they advocate it only in selected cases on account of its inconveniences. Severeanu of Bucharest said he had varied the dose from one to four centigrams and had never seen a fatal effect, although alarming symptoms lasting for forty-eight hours frequently occurred. In only two cases did anesthesia fail; in one because the injection failed to get into the vertebral canal; in the other for unknown reasons. The injection usually causes a marked weakness and a feeling of nausea that may go on to vomiting, and these sensations may last two or three days. The most serious effect is a terrific headache. The one objection that he finds most fault with is the fact that the patient is conscious, and usually markedly impressed with the operation. He has done 70 abdominal operations with this anesthesia; and although he never had a fatality, he believes it applicable to certain cases only. He found it difficult to combat the alarming symptoms that sometimes occurred, although

he had recourse to injections of caffeine, ether, and artificial serum. The technic of the operation of injection is so simple, the speaker declared, that it need scarcely be mentioned. The puncture is made with an ordinary hypodermic syringe with a long needle between the fourth and fifth lumbar vertebrae and a one-per-cent. solution of cocaine hydrochlorate used. Some of the operations were as follows: Radical cure of hydrocele, removal of a bullet from the thigh, abscess of thigh with symptoms of septicemia, tumors of the legs, tubercular abscesses of the thigh, strangulated inguinal hernia, cancer of the penis, tubercular osteo-arthritis of the ankle, and multiple sarcomata.

Tuffier of Paris gave a résumé of 125 cases. The operations were done on the legs, the perineum, the bladder, the rectum, the uterus, and its adnexa, and the intestine. He never exceeded one and a half centigrams of cocaine and always obtained absolute anesthesia. When anesthesia fails it is to be taken for granted that the solution was not good or that it was not injected into the vertebral canal. Accidents are usually due to injection of too large a quantity of the drug. As soon as the cocaine begins to act on the cord 95 per cent. of the patients complain of numbness, of anesthesia rising from the feet to the umbilicus, which may extend to the middle of the thorax. Five to ten minutes are necessary to produce this anesthesia and it lasts from one hour and a half to four hours. During the operation the patient complains of a sensation of weight over the epigastrium, of epigastric distress, of a want of air, and of nausea, which may go on to vomiting if the quantity of cocaine injected is too large. The pulse ranges from 90 to 120. After the anesthesia the patients often recover at once demanding immediately something to eat. The most common after-effect is vomiting, or a chill, or an elevation of temperature from 38°-39.9° C. This temperature rise is short-lived, lasting ten to twenty hours at the most. The only persistent and disagreeable symptom is headache which lasts ordinarily fifteen hours and may last forty-eight hours. Of the 125 cases 5 died. The death of 4 is easily explained apart from the anesthesia; the fifth died with symptoms of asphyxia. Post-mortem this case showed a mitral insufficiency with a marked congestion of both lungs. Cardiac disease is not a contraindication.

Racoviceanu Pitesci of Bucharest deduced his conclusions from 125 cases operated on between the ages of five and seventy-two years. He always makes the injection with the patient seated on a chair. Four times anesthesia failed and he was obliged to administer chloroform; twice sensibility returned before the end of the operation. He claims if this anesthesia is practised several times on the same individual, he acquires a tolerance to the cocaine. In 100 cases 17 stood the anesthesia without a symptom; 80 had light symptoms of intoxication, lasting from twelve hours to five days, and 3 showed symptoms of intoxication that endangered life. The dose em-

ployed was from two to four centigrams, either pure or accompanied by morphine. Kidney disease is a contraindication and in case of cardiac disease or arteriosclerosis the symptoms should be watched.

Vincenzo Nicoletti of Naples spoke on the histopathology of the cord after injections of cocaine. He claimed that no appreciable alteration of the nervous elements could be observed. He believes the anesthesia to be due to circulatory disturbances, and to prove this he made control experiments with ergotin, antipyrin and bichloride of quinine, and produced with them an analgesis somewhat similar to that due to cocaine.

Prevention of Shock and Infection.—Türk of Chicago read a paper with the above title in which he proposed a new method of operating on the intestine for the purpose of preventing the gut from coming in contact with the skin of the abdomen when brought out through the wound. The method consists of spreading rubber cloth over the abdomen and bringing the loop of intestine or stomach to be operated on through a hole or holes in it. Moreover, he believes most surgical shock to be due to infection, usually due to organisms normally present on the skin or in the intestine, and which become virulent only after the vitality of the part is lowered by exposure. As an analogy he quoted the susceptibility of the fowl to anthrax after lowering its temperature. To obviate this in abdominal operations he introduces a rubber bag into the abdomen filled with water at 48° C. He showed also a rubber bag capable of being introduced into the stomach by way of the esophagus, which he uses filled with warm water in cases of profound shock.

Toward the close of the session Severeanu of Bucharest demonstrated a new zigzag suture for harelip operations; Michaux a hemostat that automatically places a silver-wire ligature on the vessel it grasps; and Bramson of Copenhagen an apparatus which closes a wound by means of plates.

SECOND DAY—AUGUST 4TH.

Skiagraphy.—The most important question of the day was that of skiagraphy in relation to fractures and dislocations. It was discussed especially by Professors von Bergmann of Berlin and Maunoury of Chartres. Von Bergmann said that the study of fractures has made in the last ten years important progress in two directions; first, in the operative treatment of certain simple fractures by opening up and putting the fragments in apposition; second, in the pathological anatomy of these lesions on account of the skiagraph. There are without doubt often local causes which prevent apposition of the fractured surfaces, such as the interposition of muscle fibers; and although, unfortunately, it is not possible for the skiagraph to show this condition positively, we can easily surmise it when the image shows the bones to be separated longi-

tudinally. But it is in other cases that the Roentgen rays prove especially useful, particularly in fractures of the articulations or of the small bones; one example will suffice, namely, fracture of the patella. Malgaigne long ago deplored the frequency of these cases in which the fractures never unite and recommended even before the days of antiseptics the application of an instrument that would grasp and hold the fragments together. But these instruments have now given way to incision and suture of the fragments with silver or bronzed aluminum wire. The study of recent fractures of the patella by the aid of the Roentgen rays shows three common accidents that may prevent union: (1) the inequality of the two fragments, the upper one being much larger than the lower, so that they can remain apposed to one another only by means of a suture; (2) the breaking-up of the fragments, when the smaller slip in between the larger; (3) one of the fragments may be displaced by a movement of rotation in such a manner that the fractured surfaces of the two fragments cannot be brought in contact. All these displacements are shown by the skiagraph and are so rendered capable of being remedied. The speaker quoted 25 cases in which those complications were met with in his clinic and the diagnosis was proven by operation. All made a perfect recovery. Moreover, the skiagraph furnishes proof with the recovery that the callus is osseous, not fibrous, and shows the wire imbedded in bone. The uniformity of treatment of fractures of the patella is now recognized, but this is not true of other bones, as, for instance, the lower extremity of the radius, the treatment of which differs with the kind of fracture and the manner of displacement of the fragments. In relation to this fracture our science has been especially enriched by Gallois' "Étude radiographique et expérimentale." Fractures of the metatarsal and tarsal bones were almost entirely unknown before the invention of the skiagraph and the symptoms of such fractures were attributed to inflammation of the foot, contusion, etc., and it frequently happened that in the treatment of them by massage the displacement of the fragments was increased. (While giving his address Prof. Bergmann, and later the other speakers, exhibited innumerable skiagraphs of the injuries under discussion.)

Maunoury of Chartres said that skiagraphy was revolutionizing the study of fractures and dislocations. Its utility has been contested in vain by showing the deformities that may appear in the image on account of the position of the member, the distance of the tube, the angle of incidence of the rays, etc. The errors that one may fall into are not to be imputed to the method, but to the wrong interpretation of the information that it furnishes. In order to avoid these errors it is desirable to be more precise in the technic and the examination. The rôle of skiagraphy in the study of fractures may be considered under diagnosis and treatment. In diagnosis

it renders us incomparable service by showing the number of fragments, their form, position, overlapping, etc. In order to obtain an exact knowledge of a fracture, it should be skiagraphed at two angles. Generally we take the face and profile of the part. Skiagraphy is useful in all fractures, but among those in which its rôle is particularly important may be mentioned the following: Fractures of the upper end of the humerus which will often explain the ankylosis attributed to a periarthrititis; fractures of the lower extremity of the radius which are accompanied so frequently with lesions of the wrist; fractures of the tibiotarsal joint; fractures of the astragalus which were considered some years ago as very rare; finally, the fractures of the metatarsus which is a lesion with which military surgeons were well acquainted, but the pathogenesis of which has been discussed for a long time without its true nature being appreciated. The formation of the callus is very interesting to study with the skiagraph. The first period of formation does not manifest itself, but at the end of a dozen days there appears at the extremities of the fragments a light cloud that gradually becomes more pronounced. If the fragments are accurately apposed the callus makes at the level of the fracture a diffuse globular mass which little by little becomes fusiform and compact. If there is slight overlapping a cloudy deposit closes the medullary canal of each fragment and makes a thick layer at the level of contact of the fragments laterally. The time of formation of a definite callus is variable, being dependent upon the thickness of the bone. In certain cases, especially oblique fractures of the tibia, the callus may remain a long time invisible even up to complete union. In the treatment the skiagraph is not less useful. Thanks to it we are better able to reduce fractures and see how far reduction is possible. It is, moreover, easy to keep watch on the position of the fragments and rectify it at will during the progress of knitting. It shows us in what cases suture of the fragments will be necessary, but it is especially useful in fractures of joints, particularly those of the elbow and ankle. Dislocations are much less benefited by the discovery of Roentgen than fractures. Nevertheless, a certain number of unrecognized dislocations have been brought to light by its use. Unfortunately, it gives no information on the most common causes of irreducibility, which usually lie in the soft parts. However, in old luxations it shows us the new osseous formations preventing reduction and often gives interesting information in coxalgia.

Tuffier of Paris from a study by means of the skiagraph of more than two hundred cases of fracture concluded that when reduction was imperfect the site should be cut down upon and the fragments wired together. For cases in which it is difficult to bring the bones in apposition even after cutting down he has invented an instrument to aid in reduction. He believes that the future of all epiphyseal fractures, especially at

the elbow and knee, lies in wiring the fragments in the majority of cases.

Thiery of Paris also advocated suture of the fragments as giving the only perfect results in fractures. He contended that it was now considered the only method in severe fractures of the olecranon, patella, complicated fractures generally, etc., and he believed it would prove even more successful in the treatment of simple diaphyseal fractures with overlapping.

Fracture Treated by Massage.—Championnière of Paris spoke on this subject and gave the results of his treatment in a great number of cases. He said that the treatment of fractures by massage is the early application of movement to the wounded part. It should not be confounded with the secondary employment of massage in order to get rid of adhesions or produce flexibility. To avoid confusion he designated his early massage "gluco-kinesis," gentle movement. The treatment consists in the application of methodic movement from the first moment of fracture. The massage should be gentle and easy and approach only the neighborhood of the fracture without actually disturbing it. Under some circumstances motion without massage may be used. With massage and a certain amount of movement contracture disappears early, repair proceeds more rapidly and is more solid. Almost at once the pain disappears and this is the criterion of proper massage and proper movement. No treatment has been able to conquer contracture so well. Other advantages of this treatment are that the blood circulates more freely, the vitality of the skin is preserved, there is no danger of muscles and nerves undergoing atrophy, and there is no need of secondary treatment. The speaker detailed a number of different kinds of fractures treated after this method. Among others he mentioned (1) all fractures of the elbow, especially of the olecranon. He claims he has never been obliged to suture a fracture of the olecranon; (2) all fractures at the wrist which do not allow the hand to fall backward; (3) all fractures of the clavicle; (4) all bimalleolar fractures without a lateral or posterior displacement; (5) all fractures of the scapula, etc.

Cancer of the Cheek.—Morestin of Paris gave some details of 12 cases of this condition that he had seen. He said that in frequency they seem to stand between cancers of the mouth and cancers of the palate. In the 12 cases there was only one woman; the greater number smoked and all had markedly carious teeth. Cancer of the cheek is more serious than other cancers about the face because more insidious. Usually when the surgeon sees it for the first time it is already inoperable. Of 12 cases 7 when first seen had reached this stage. Of the 5 that he operated on, 1 died the same day, 1 has been lost sight of, and the remaining 3 relapsed and died in from three to eight months.

Resection of the Superior Maxilla.—Severeanu of Bucharest has found most advantage from a combination of the vertical incision of Maison-

neuve with the transverse incision of Dieffenbach. He claims that by it the field of operation is made larger, yet the cicatrices remain almost invisible. He believes in doing primary tracheotomy before the resection.

Exploratory Craniectomy in Abscess of the Brain.—Nanu of Bucharest described one case. It was that of a man of thirty-six who had had a purulent otorrhea for ten or twelve years. Shortly before the operation the discharge diminished, became fetid and symptoms of encephalitis developed. The patient entered the hospital in a state of coma and with a total left hemiplegia. The mastoid was trephined, but no pus was found. An exploratory craniectomy was then done. The meninges were found normal. A puncture of the brain was made with a Provaz needle at the level of the psychomotor area. The result was negative. The needle was then introduced higher up, at the level of the temporal lobe, when at once a very fetid pus oozed out. The operator then cut down through the brain substance and found a collection of pus which he evacuated. The site was irrigated and drained. The whole external wound was sutured except a small hole which carried the drainage-tube. Half an hour after the operation the previously paralyzed limbs showed movement, and on the following day the coma and hemiplegia had disappeared. The patient is now entirely well and has returned to his work.

Resection of the Gasserian Ganglion.—Krause of Berlin gave the details of 24 cases operated on by him by the temporal method which he discovered in 1892. Two patients died, one a woman of fifty-eight, extremely feeble, who died in collapse; the other a man of seventy-two, who died the sixth day after operation from sclerosis of the coronary arteries and cardiac insufficiency, although during the six days the wound had united by first intention without fever. Six of the patients operated on more than five years ago are all well and without pain. He therefore believes that in spite of the danger, the operation is a proper one in serious cases of neuralgia.

Resection of the Cervical Sympathetic.—Jonnescio of Bucharest gave statistics of 126 such resections, of which 97 were in epilepsy, 15 in exophthalmic goiter, 12 in glaucoma, one in vertigo due to cerebral anemia, and one in essential migraine. The speaker has modified the operative technic, so as to remove the whole cervical chain, and in the last four cases even the first thoracic ganglion, while preserving intact the superficial cervical plexus and the facial nerve. He performs the entire operation at one time. The therapeutic results of the cases detailed were as follows: Of 13 cases of epilepsy operated on in 1896, 5 have since died, 3 were absolutely cured, 1 improved, and 4 were unsuccessful; of 17 cases in 1897, 6 were cured; 2 improved; 5 unsuccessful, and 4 disappeared from view; of 27 cases in 1899, 2 were improved, 1 unsuccessful, and 24

disappeared from view; of 21 cases in 1900, 1 was cured; 2 improved; 1 unsuccessful, and the result in 17 is not known. Of 15 cases of Basedow's disease, 6 were entirely cured; 4 decidedly improved, and 3, though cured, have been operated on too short a time to be included. The migraine cases are also too recent to give the results.

Chipault of Paris said he had done 40 resections of the cervical sympathetic; 23 for epilepsy, 3 of which were cured, the remainder being uncertain; 2 for exophthalmic goiter; 5 or 6 for glaucoma; 3 for facial neuralgia, all being cured; and 1 for spasmodic torticollis, which was cured. The intracranial resection according to Krause's method was done twice with success, but the speaker considers it a serious operation which should, therefore, be limited to very special indications.

Fracture of the Vertebrae.—Chipault of Paris gave statistics of his treatment in 147 cases. He said that such a number authorized him he thought to speak on the subject. At first he advocated active intervention, only to change his opinion after a number of cases, but now he has returned to almost his first position and believes that active therapy is necessary in most of the cases. To differentiate fractures according to time he designated them *immediate*, when from twenty-four to forty-eight hours old; *recent*, when from five to twenty days old; *old*, when from three to eight months; and *very old* when one year or more. These dates correspond to different critical times in vertebral fracture. He then simply enumerated the number of times different active or non-interfering measures were employed, and excused himself from further details, on the ground that they would take up too much time, which could be found in his book on the "Treatment of Surgical Medullary Diseases," now in press.

REVIEWS.

Transactions of the American Pediatric Society.
Eleventh Session, 1899.

THIS volume of the Transactions of the American Pediatric Society shows that the interest in children's diseases in this country is not allowed to wane. The book contains a series of very interesting articles on what has been well called the specialty of the general practitioner. Certain articles seem to deserve particular mention, because it is well to know where they may be found for reference. Among these are Dr. Koplik's article on "The Increase of Weight in Infants Fed Artificially;" "Cases of Scurvy in Very Young Children," reported by Drs. Crandall, Fruitnight and Huber. Dr. Henry Dwight Chapin has an interesting article on the use of gruels as diluents of cow's milk, and Dr. Forchheimer an article on that debated entity "Vaccinoid."